AS TRAINING MOVES TOWARD THE NEXT DECADE

A Needs Analysis of Professional Development for Trainers

A report by George Geis for Ontario Training Corporation
May 1991

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KEY TO ACRONYMS

AECT - Association of Educational Communication and Technology

AMTEC - Association for Media and Technology in Education in Canada

ASTD - American Society for Training and Development

CAD - Computer Aided Design

CBT - Computer Based Training

CMT - Computer Managed Training

IBSTPI - International Board of Standards for Training, Performance and Instruction

ID - Instructional Development

ISD - Instructional Systems Development

IVD - Interactive Video Disk

OD - Organization Development

OISE - Ontario Institute for Studies in Education

OJT - On-the-job-training

OSTD - Ontario Society for Training and Development

OTC - Ontario Training Corporation

PT - Performance Technology

EXECUTIVE SUMMARY

AS TRAINING MOVES TOWARD THE NEXT DECADE
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EXECUTIVE SUMMARY

OVERVIEW

This report examines two aspects of human resource development, training and the people who carry out that function inside and outside of organizations, trainers. The report describes the changing environment in which trainers will work and the training activities which will take place. It does so in the form of a needs analysis, looking at various bodies of knowledge and opinion which can, when synthesized, present a likely picture of what training will be like in the coming decade and what trainers should consider if they wish to be active contributors in and to the future.

Ideally, the report will generate dialogue among trainers as well as within their client groups such as employers, labour and the employees of the organizations within which they work, and, most importantly, discussions between those groups. It also presents an agenda for action by those concerned with the future of training.

Ontario's Competitive Agenda must focus on Human Resources

Why should we be concerned about training in Ontario? From an economic prospective, countries are being forced to adopt a competitive agenda; changing the way management and labour produce products and provide services. Ontario's ability to compete and integrate change, in this decade, and into the 21st Century is being seriously questioned. Coming under particular scrutiny are the knowledge and skills of our human resources. Never before has there been such a focus on the human resources in our society and never before have we so seriously questioned the performance of our learning institutions, training programs in the workplace and the basic skills required of individuals.
From an organizational and individual perspective, current and predictive change to develop a competitive agenda must in good part be dealt with in terms of human beings. What will be asked of them? How can they be assisted in growing and developing, adapting to change and creatively seizing new opportunities? For the organization, how can the sharing of more information translate into the distribution of power between labour and management?

The workforce, the workplace, the organization, and the nature of jobs will all undergo dramatic changes over the next ten years. Trainers and others involved with human resource development will be faced with challenges and demands driven by these changes.

This report views these challenges through the eyes of the trainer and the role of the training function although it is recognized that the many challenges faced by organizations (of course) cannot be addressed solely by the training function.

CHALLENGES FOR TRAINERS

Changes in the Environment

Challenge No. 1

Defining new jobs is a challenge for the trainer. Preparing people for them is an even greater challenge.

It is important to begin with the environment in which future training will take place. The report points out that many, previously stable, elements of that work environment are rapidly changing.

New and qualitatively different jobs will continue to develop at a rapid pace. For example, twenty years ago there were few people involved in the infant computer industry. Today, not only are there thousands of people making, selling, servicing and providing programs for computers, but hundreds of thousands of us have learned to use them. In fact, for many of us, our jobs now revolve around this piece of technology.

As such technologies expand and proliferate, and as more organizations and businesses devote increasing time and energy to information management, work will become increasingly symbolic and abstract. In the past, most work has involved hands-on manipulation of materials and machinery. Today and tomorrow, in a robotic factory, for example, the worker must deal with symbolic representations of processes and materials. As the report states, more and more people will <u>earn</u> (and learn) rather than <u>make</u> a living.

Challenge No. 2

Trainers must deal with a more diverse population of trainees than they have dealt with in the past.

Such changes in the workplace and in work tasks are a sizeable concern to deal with for those in training. But concurrently, just to make life more challenging,

there will be dramatic changes in the workforce itself. We have already seen the beginnings of many of them, for example:

- increasing numbers of women in the workforce, along with a greater concern about managing work schedules in the family;
- a smaller, post baby boom, pool of new entrants into the workforce;
- changes in the nature of the immigration stream, with new workers coming from different cultures than in previous times;
- increased number of disabled and older, more experienced, people entering the workforce

Many of those entering the workforce, as well as many already in it, will not have the prerequisite skills for the new jobs that they will be required to do.

Challenge No. 3.

Trainers will be challenged to address the new requests and needs for generic skills.

Companies and other organizations are increasingly demanding more generic skills (such as literacy, numeracy and problem solving) for their workers. This is partly because of the increasingly higher level of tasks involved, partly in order to provide more flexibility in staffing, and partly, in some companies, because training is now seen as something that ought to be a personal benefit to the learner as well as a benefit to the company. Trainers have traditionally been focused on those particular skills related to a specific job.

Challenge No. 4.

Trainers will have to facilitate trainees' entry into different types of jobs located within differently structured organizations.

Companies themselves are likely to change. While there is talk of deskilling and an increasingly hierarchical pattern in future businesses, most futurists predict that the opposite will happen. They suggest the trend is toward a flattening of pyramidal organizational structures (note the recent reductions in the middle management segment of corporations). New information technologies permit this move toward horizontal structures. Such re-organization further suggests that many employees will have much greater autonomy, independence and responsibility.

Challenge No. 5.

Trainers will have to provide explicit training or other facilitation to aid the worker in advancing and developing within the organization.

In the past, the trainer, consciously or not, could rely on a large and important 'shadow' training infrastructure in many organizations. Companies may never have realized it was there until it disappeared. Experienced employees regularly acted as mentors to new employees. In manufacturing plants, for example, jobs usually consisted of a number of steps with each successive task building upon previous ones. Apprentices could slowly work their way to more advanced tasks simply by being present and being guided by their co-workers. The more independent and isolated, self-contained jobs of the future will eliminate this intrinsic training structure. Trainers will have to provide explicit training or other facilitation to assist the worker in advancing and developing within the organization.

Changes in the Training World

Challenge No. 6.

Trainers must not merely "keep up" but also take a leadership role; to "get to know the business" and "get to know the labour force"; to contribute to their organization in significant ways; and to provide their worth in terms of evidence of impact to the bottomline of the organizations within which they work.

Concurrent with the evolving organizations, there have been dramatic changes in one industry in particular -- training. Perhaps it is not coincidental that in advance of the predicted changes in other areas, the training business itself has dramatically altered. Traditionally, the trainer was often seen as an in-house school teacher, providing instruction to classes, preparing and administering tests, and hoping that what was learned would be applied outside the classroom. Training was an add-on, far removed from the strategic operation of the organization and easily trimmed when times were tough. Trainers now have to become more familiar with the purposes of the organization and the values and perspectives of the people in them.

Challenge No. 7.

Trainers are challenged to become familiar with and find their significant role in an emergent human performance technology.

About twenty years ago, seeds were planted which have grown into a sophisticated, research-grounded and successful human performance technology. An underlying

and challenging assumption of this technology is that there are many influences that affect human job performance. Only one of these is knowledge and skill related. Performance depends as well on such things as motivation and physical attributes of the working environment. Consequently, the contemporary human performance technologist focuses not on learning as the problem and teaching as the solution. Instead, s/he examines job performance, tries to determine the major factors affecting it, and devises an appropriate solution which may involve job aids, equipment redesign, incentive systems, and training. Adult education has contributed a new perspective of the adult learner as a partner in change. Trainers must become knowledgeable about both performance technology's processes and about adult education's principles and values.

Challenge No. 8.

"Change" is the word that characterizes the trainer's world in the coming decade. The training function itself must be ready to make contributions to solving the problems produced by change.

Human performance technology requires and demands a more important influence on organizational decision-making. To be effective the technologist must be aware of and provide input to important organizational decisions. Trainers have bemoaned the lack of recognition and status in their organizations. From the perspective of human performance technology, participation at the top is not a generous act of management, but a necessary element in organizational survival and success.

Challenge No. 9.

The training community itself must be ready to make more and better contributions to solving the problems produced by change.

All of an organization's needs cannot, of course, be addressed by the training function. Industry, government and education must do more than they have in the past. Ample documentation exists elsewhere which indicates that Canadian industry has been slow to build the necessary infrastructure and to pay more than lip service to the value of human resource development.

> "Canadian businesses have to learn to address their education and training agendas with the same level of competence and attention that they now devote to the financial and capital budgeting process. They have to make international business and considerations central to their human resource programmes" (Rugman & D'Cruz, 1990, p. 10).

Governments and educational institutions have failed to develop coordinated plans for manpower development. There is clearly a need for greater synergistic relationships of industry, government, labour, and education.

Nevertheless, the training community itself must be ready to make more and better contributions to solving the problems produced by change. To do so its members must actively prepare themselves to meet the new demands:

- by learning how to deal with heterogeneous trainee populations, who may have low literacy skills;
- by assisting in the redefinition of jobs and their interrelationships as the nature of the organization and the nature of work change;
- by facilitating the input of the workers and learners in the redefinition of jobs and in their development to higher levels of competence and greater satisfaction;
- by applying the problem solving approach of the emerging human performance technology to a wide range of human resource problems;
- by utilizing new technologies of performance improvement, particularly those non-training systems, such as job aids which are integrated into the job itself;
- by mastering, and using where appropriate, non-training solutions;
- by contributing to the professionalization of the field;
- by increasing performance technology's value to the organization through better accountability and by linking performance improvement efforts to the organization's mission;
- by engaging in continuous, effective and efficient self-development in a field undergoing dramatic changes.

Challenge No. 10.

Training needs to be recognized as a fundamental strength within the organization.

Most businesses are acutely aware of the need today to hone their competitive edge. There is a growing awareness that in order to do so they must invest in human resources. In Canada, there is a relatively weak training infrastructure

within the corporate world. Traditionally there has been reliance upon support from elsewhere for the preparation and re-training of employees. For example, training for employment was a major focus of the Ontario college system (the Colleges of Applied Arts and Technology).

The lack of training resources in the industrial and corporate world is exacerbated by the perspective that training is adjunctive to the main concerns of the company. Training is seen as an add-on function; it is often organizationally (and physically) apart from the other functions like production and sales, which are considered to be major. The preparation of people for, and support of people in jobs will have to assume a more prominent place. Particularly important is the inclusion of the human resource function in strategic planning. Of course, training alone cannot solve the problems of a lethargic company with a mediocre product. Nor can it solve the systemic problems that plague many organizations. However, it can be allowed and encouraged to contribute its strength to the organization in a strategic and proactive way.

What Trainers Need to Know

Challenge No. 11.

Trainers will have to expand and upgrade their knowledge and skills. "Expansion" involves adding new areas of competence such as cost benefit analysis. "Upgrading" means becoming more competent in familiar areas such as analysis, organizational development, evaluation and interpersonal communication.

This report examines academic curricula and descriptions of competencies attempting to determine what teachers of training and leaders in the field see as critical elements in the trainer's repertoire. The Ontario Society for Training and Development (OSTD) for example, has developed such a list of requisite skills and knowledge. Others include American Society for Training and Development's (ASTD) competencies and those of International Board of Standards for Training, Performance and Instruction (IBSTPI). Emerging from this examination are several key areas which seem to represent the core of at least an idealized trainer. Trainers will have to expand and upgrade their knowledge and skills. However, two points are noted. First, no one person may wish to or be expected to have a full command of all of these areas of competence. Secondly, many of the most important areas suggested by this analysis are neither ones in which many trainers have strength, nor for which there is readily available training. This brings us to the final section of the report.

Challenge No. 12

Trainers will have to learn to integrate technology into the content, the design, the delivery and the site of the training programmes to improve human performance.

The real challenge for trainers will be to keep technology subservient to the training need while at the same time pushing the frontiers of training so that the single learner will replace the class as the main unit of instruction. The new technologies enable training to be learner driven; where the learner needs it; when the learner needs it; and what the learner needs.

There exists a blinding array of amazing technological aids for the trainer to consider: Computer Based Training (CBT), Computer Managed Training (CMT), Computer Aided Design (CAD), Interactive Video Disc (IVD) and so on. Future needs of the trainer-practitioner will be generated by the very presence and availability of these technologies. Too often, the new medium becomes the training solution; and the training needs of the trainee become a secondary consideration.

Resources

Challenge No. 13

Government, business, labour and the training community must work to improve the resources available for the professional development for those in or entering the training field.

The report concludes by examining how ready we are in Canada, and specifically in Ontario, to provide resources which can assist today's (and tomorrow's) trainer in meeting the challenges described earlier. The answer is: not very ready!

As noted earlier, there appears to be some recognition from labour and business of the critical need to pay attention to human resources -- an awareness that the development of these resources may determine which organizations succeed and which fail in the next decade. However, there does not seem to be a clear view of what the organization will do or where the role of training and human resource development fits in.

In the training community, there is a growing awareness of the changes in the field. In Ontario, there are several active professional associations and networks which are in place. They can play an important role in the next decade: in conducting necessary research and in raising the awareness of and providing training to their members.

Continuing professional development plays an important role in all professions today. In the field of training it has never been more critical than it is now.

For the trainer wishing to engage in professional development or for the novice wishing to enter the field, Canada offers sparse resources, particularly in the areas which characterize the changes in the training profession (e.g., analysis evaluation and organizational development). Only a few academic programs exist, with neither the magnitude nor the diversity of those in the United States. While conferences and workshops can play a role in continued professional development, a scan of the many such opportunities does not suggest that they currently address the indicated areas of expansion and upgrading.

The challenge of the future to organizations, profit and non-profit alike, will be to optimize their human resources. Ontario must consider how to strengthen its training community -- providing professional development for those in or entering the training field and recognizing the importance of an effective training function in organizations. This report, As Training Moves Toward the Next Decade, begins to construct an agenda for that effort.

AS TRAINING MOVES TOWARD THE NEXT DECADE

INTRODUCTION

> "As every advanced economy becomes global, a nation's most important competitive asset becomes the skills and cumulative learning of its work force" (Reich, 1990, p. 53).
>
> "Canada's future prosperity will rest heavily upon the quality of our human resources ... In short, greater investment in training and education is a requirement that faces most businesses and workers" (Canadian Chamber of Commerce, 1989).
>
> "One of the key competitive challenges Ontario faces is developing our most fundamental natural resource: the minds and skills of our workers" (Ontario Premier's Council, 1989, p. 31).
>
> "The industrial restructuring challenge facing Ontario over the next decade will require massive shifts of capital and human resources to higher value-added per employee activities in all sectors. These shifts cannot be accomplished without a substantial increase in the level and quality of workplace training in the province" (Ontario Premier's Council, 1990, p. 84).

As Canada moves toward the year 2000, there are many voices predicting that the nation will be engaged in a dramatic struggle to maintain a competitive edge in the global marketplace. To meet that challenge, investment, to a greater degree than previously imagined, must be made in developing appropriate human resources. Capital investment -- investment in factories and machines -- which has traditionally been assumed to lead to increased productivity may contribute less to economic growth than investment in human capital. Knowledge, education and training have become the essential tools for developing human capital. Are training and educational resources ready to meet this challenge or must they be altered and expanded? We have recently been told by major government reports and by those of labour, business and industry that Ontario is ill-prepared in the area of human resource development. "The focus must change from investment in machinery and equipment to investment in people" (Denommé, 1990).

The present report speaks to those responsible for that development, particularly to trainer-practitioners but also to corporate managers and labour representatives. It provides an analysis of the needs of trainers and training for the coming decade. It is intended to generate a dialogue about the future needs and roles of training among trainer-practitioners as well as corporate managers and labour representatives. In addition, it should spark discussion between these groups. The broad comparative analysis in the report reveals a number of areas in which further product or service development will be required to ensure that there are adequate professional development resources for trainers in the next decade.

PROBLEM AND NEEDS ANALYSIS

WHAT IS NEEDS ANALYSIS?

Before addressing any problem it is a good idea to objectively verify its existence. A common model for problem delineation is discrepancy analysis (Provus, 1971). It compares a goal with the current reality, i.e., comparing how you would like things to be with how they actually are. The gap between the two represents a possible problem. Further examination or analysis of that gap can reveal how large and how important it is. In terms of this report, there would be a problem in the area of trainer and training needs were there a significant discrepancy between where training is now and where it is likely to be in the next decade or two. In other words: is the present training infrastructure in Ontario insufficient or unprepared to meet current and projected demands? But more specifically: what needs might trainers address to prepare themselves for the year 2000? That is a needs analysis (Kaufman & English, 1979; McKillip, 1987; Rossett & Arwady, 1987).

THIS REPORT

This report presents the results of such a discrepancy analysis. It offers a wide-ranging needs analysis which attempts to portray the current strengths and weaknesses of training and trainers in Ontario and the trends which suggest the future state of affairs.

A variety of sources provided information for the analysis:

- The trainer practitioner will be working within a context. And so the first section examines what futurists suggest the world of work will be like by the year 2000. Since there exists a large literature detailing the trends discussed in that section, only the highlights are presented along with some broad implications for trainers.

- The world of training itself is undergoing dramatic changes. The second section deals with the profession and the significant trends that have emerged over the last decade.

- The third section examines studies of perceived needs as articulated by trainer-practitioners and their clients.

- There follows an analysis of curriculum for trainers as offered by academic institutions. The supposition for the section is that such offerings represent areas of need as perceived by academic experts. Professional associations

offer the final input by providing statements of necessary competencies for trainer-practitioners in articles on standards, competencies and certification requirements.

- Finally, after a summary review of the various perceptions of needs, there is a discussion of the resources available to meet those needs.

Throughout the report we refer to "needs" of trainers. The word "need" may carry some negative connotations. We use it because of its common use in training literature. However, it should not mask the fact that many of the so-called "needs" are positive opportunities for professional growth and development.

CONTEXT: THE FUTURE OF THE WORKPLACE

THE WORKING ENVIRONMENT, YEAR 2000

A great deal has been published during the past few years about the characteristics of the workplace of the future. Research articles and the popular press have been supplemented by numerous publications from governments and international agencies (Wallace, 1989). The prophecies differ somewhat in their particular focus but there is an impressive amount of agreement about some things. There will be important changes in the nature of the workforce; in the nature of the workplace; in the nature of work itself; and in the nature of the organization. As Harris and Harris (1983) pointed out, it will be a new ballgame -- and not just with new rules; there will be new players and a new ballpark as well!

The Workforce

Predictions about the nature of the labour pool and the labour force are of special significance. "In the years ahead, Ontario's employers face a prolonged period of labour shortage, rather than one of labour surplus, and a workforce with new demographic characteristics" (Ministry of Skills Development, 1988). We know that in Canada the pool of young indigenous workers entering the labour force will diminish. We also know that the population is getting older -- by the year 2000 more than 40% of the population will be over 50. It is suspected that greater numbers of older workers will remain in the workforce although they (as well as the younger ones) will show increasing job shifting throughout their lifetime (Dychtwald & Flower, 1990; Galagan, 1990; Rothstein, 1989). Business and industry, through changing attitudes and physical accommodations, will increase access for people with handicaps who previously had limited access to the workforce.

Typically a reduced labour flow into the workforce has been compensated by immigration. While this may be true in the future, the profile of the immigration stream will be different than in the past. Historically, immigrants came from Europe, were often skilled craftsmen, and were easily integrated into a hands-on industrial scene. In the future, immigrants will often be coming from other cultures, from non-urban and non-industrialized areas. And those bottom-rung jobs, the level at which new immigrants traditionally have started, may not be as plentiful as in the past.

The number of women in the workforce will continue to increase. Part-time workers and at-home workers will represent a larger share of the workforce. Partly as a result of these trends, workers (and their employers) will become increasingly concerned with the interaction of family life and work -- already we have seen daycare centres at work sites, maternity and paternity leave clauses in contracts, and so on.

Although the prophets foresee an increasingly sophisticated world of work with the concomitant need for highly skilled and knowledgeable people in the work force, the disturbing trend is toward increases in school dropouts (30% of Canadian young people drop out of secondary schools) and lower levels of generic competencies such as literacy and numeracy (it is estimated that one in five Canadian adults is functionally illiterate). Changes in the composition of the workforce will be exacerbated by continuous changes in the skill requirements for jobs.

The Workplace

The workplace itself will increasingly display the results of high technology (see for example, Blazey & Davison, 1990). Automated factories and the use of robotic machinery will become common. Many workers will be removed from direct contact with production. The touch, taste, smells and sights associated with production tasks will be abstracted into symbols on a computer screen. And the worker will have to deal with that symbolic translation of the former job environment. More people will earn rather than literally make a living. The torrent of information which has characterized recent history will be the focus of many jobs, as large numbers of workers will be involved in the management of knowledge and information. Historically, the move from hand labour to automation has always been disrupting. But, "when the technology also informates (i.e., generates information about the underlying productive and administrative processes through which an organization accomplishes its work) the process to which it is applied, it increases the explicit information content of tasks and sets in motion a series of dynamics that will ultimately reconfigure the nature of work and the social relationships that organize productive activity" (Zuboff, 1988, p. 10). The social relationships are likely to be less hierarchical and more egalitarian.

Work stations of the future will often include computer interfaces. Once the computer is part of the work station on-site communication (and training) can be carried out using computers. Thus, the trainer will have impact on the worker's performance immediately and directly while the work task is being executed. As Carr (1990) says, "the system is the trainer and the training" (p. 20).

Work Itself

Some jobs will change (for example, an increase in jobs in the service sector relative to those in the manufacturing sector), some jobs will disappear, but most importantly there will be a great number of new jobs created. One prediction is that, by the year 2000, 80% of workers will be at jobs that do not now exist. In the process of change there will be large numbers of temporarily displaced workers who will need counselling, training and placement. Already "(w)orkers who may have thought their acquired expertise left them

secure have often been subjected to a wrenching transition to either a lower paying or an entirely new job requiring a decidedly higher level of skill" (Ontario Premier's Council, 1990, p. 3).

And jobs themselves are likely to be organized differently. The trend will be to jobs that involve many different aspects -- complex and integrated wholes -- as contrasted to the single task, assembly line model we have known. Workers will be asked to be responsibly autonomous; they will have greater independence, control and responsibility. They will be increasingly empowered; they will often be engaged in cooperative team work; but they frequently will be more physically isolated. There are two contradictory predictions: one is that the technological advances will in fact lead to deskilling and increased control by a hierarchical management. The other proposes a flattened organizational hierarchy with increasingly autonomous worker-participants. Which future will be the real one will depend in good part on the attitudes and methods of management and organized labour (for further discussion of this issue, see Muszynski & Wolfe, 1989).

The concept of multiskilling has become attractive to many organizations and appears to be a trend to consider seriously for the future. It focuses training on the person rather than on a specific job. One attraction for the organization is that multiskilling allows the movement of workers from one task, job or project to another as the situation demands. By increasing the worker's skill repertoire, it may allow greater flexibility both for the organization and for the individual worker. "Instead of doing simple procedural and predictable tasks, people will become responsible for inferences, diagnoses, judgements and decision making, often under severe time pressures" (Goldstein, 1989).

In summary: "The major effects (of technological change) will be a redistribution of work assignments within organizations and a new division of labour across organizations, societies and countries. This in turn will significantly alter the nature of work and the skill structure of employment" (Muszynski & Wolfe, 1989, p. 248).

The Work Ladder

Changes in the workplace will dramatically increase the need for training because the new work environment will no longer "naturally" provide step-like sequences of job learning. Recently, a magazine essay on Japanese industries included a picture of an automated steel factory. It showed a huge floor filled with equipment. Up near the ceiling was a glass bubble in which a few white-coated technicians were working under the glare of fluorescent lights -- working at the computers which operated the machines on the floor below. The office and the shop floor were integrated! That picture demonstrates the job changes that are being discussed. But it tells another story as well. There are not the numbers of differentially skilled people on the floor that used to be there to guide the novice worker step-by-step to higher levels of competence. In the old-style factory or

office, one could enter the system at the lowest skill level. Over time, the curious novice coupled with some generous mentors, could learn the elements of the next-up job. Much training was hidden within the system itself -- other employees in informal apprentice arrangements provided the ladders, up which the novice could climb. And the typical manufacturing process consisted of many successively more complex tasks so the rungs of the ladder were not too far apart. Today, entering that Japanese steel factory as a sweeper, the novices can find no ladders which will guide them up to the glass bubble at the top. In short the natural, intrinsic mechanisms for advancement are no longer present. The way to get from the front door to the desk or computer must involve explicit, planned training (for an interesting comparison of the old and new factory environment, see, Clancy, 1989).

The Organization

The nature of many organizations will be changing as well. Already businesses have seen a reduction or elimination of middle management. They are becoming leaner. Management tasks are now being incorporated as parts of many different jobs in the company. The organization of the future, it is said, may have a less hierarchical, more decentralized, more horizontal structure; the traditional organizational pyramid will flatten. Regardless of such changes in structure, there will be more participation. For one, information will be, and must be, shared among many more people. The transfer of more information to workers is a redistribution of power and ultimately responsibility. Managers will have to shift from a model of controlling and directing, to one of developing harmony and integration among self-contained job units.

As was already implied, organizations will have to respond to the general, social movement toward greater participation among all members of a unit or community. This suggests that all workers, all employees will have the opportunity and responsibility for contributing to the organization in new ways. We have already seen examples of such community decision making as the Quality Circles in Japanese industries. Participation in decision making is a global change influencing social organizations, such as health care systems. Some for-profit organizations have already recognized and begun to deal with this important change in perspective. This broader sharing of decision making and authority will occur at a time of economic stress. It will be seen by some as a disruption and by others as an opportunity for organizations to become more effective. Trainers will be looked to for assistance and guidance in making the transitions.

In the coming decade organizations will become more acutely aware of the need to be competitive. Thus they will demand that each functional area (including training) become accountable in terms of contributions to the bottom line.

IMPLICATIONS FOR TRAINERS AND TRAINING

All of this means that those concerned with human resource development are now facing, and will continue to face a great range of new problems as outlined in the following sections.

Diverse Workers

The new profile of the labour force will demand that training practitioners address diversity in the trainee population. As noted previously, high levels of literacy cannot be assumed when developing training materials, also, examples and references which assume common cultural items may be problematic. Two recent articles which discuss these issues are Hentges, Yaney & Shields, (1990) and Thiagarajan (1988). Older workers may have physical needs the trainer is unused to handling: print and audio may have to be heightened to compensate for vision and hearing deficiencies. Training older workers is addressed in two recent articles (London & Bassman, 1989; Sterns & Doverspike, 1989). But more importantly, older workers have had extensive experience and may consider themselves experts. Their previous work experience may interfere with new learning. This will be true of many other workers as jobs are altered more frequently and as regular retraining becomes common place. Of course, the clever trainer, following a key principle of adult education, can capitalize on previous experiences by incorporating them into the training.

In view of the forecasts of increased diversity in the workforce trainers will have to develop new skills in diversity management. They will have to know about the social and psychological dynamics of learners and how to analyze learners' abilities. They will need an array of communication skills, in relationship management, group processes and group dynamics. They will need to master interactive and experiential methods of learning such as simulations and role plays (Ontario Training Corporation, 1990). Low levels of literacy pose additional challenges to the trainer. S/he will need to adapt and accommodate learners who do not handle text well. S/he cannot assume comprehension and so must regularly use formative evaluation techniques to determine how well the learner is progressing and whether the materials are suitable.

As will be noted later, a major movement in Education has been the recognition of the particular resources and needs of adult learners. Since mature workers and workers from diverse background will make up an increasingly larger percentage of the work force, attention must be paid to the principles and values represented in Adult Education. Attention to the individual and to the needs of learners as well as to those who are to assist them in learning (i.e., the trainers), is a key concept in Adult Education.

New Jobs, New Machines

New jobs will require training people in new skills. Training practitioners have already experienced this with the introduction of new text processing technologies into the office environment -- more will come. Unlike training novices for existing jobs, preparation for the training of new jobs involving new equipment or systems cannot always rely upon the debriefing of expert performers; in many cases such individuals do not yet exist. So trainers will have to interact with those experts who developed the systems rather than with experienced users. Experience has shown that this population of experts -- for example, the computer programmers -- are not aware of users' needs or of how to teach a novice the new procedures. It may be that suppliers will eventually see that provision of appropriate training can gain them a competitive edge. But so far the new technology is usually dumped into the system and the training practitioner is left to develop the human skills and knowledge needed to make it work.

If a training team had been involved in the design of the typewriter or of the Morse Code or Braille systems it is likely that a more user friendly design would have been developed. The keyboard and the Morse and Braille systems present real difficulties to the learner -- unnecessary difficulties brought about by poor design. They require more training than alternative designs would and encourage certain systematic errors. Any system which involves human operators or users should include training experts in the design team. The knowledge of what will be involved in teaching the user can have a sobering and enlightening effect on the designers. The smart trainer may put herself/himself out of the training business by moving systems designers toward more user friendly designs (see Carr, 1990).

To prepare for the introduction of new technologies the trainer must at least be informed of, and ideally a part of, planning its introduction and implementation. This means developing closer ties with upper management and being aware of planned change. And it also means demonstrating to management the benefits of training.

New Skill Levels

New jobs are often likely to require a high level of skill and knowledge. Filing papers in a file drawer is simply an easier task than filing text in a computer. As we see the emergence of more information management jobs and of jobs that deal with abstractions of industrial processes, trainers will have to learn how to develop new sets of competencies for employees. These competencies will be qualitatively different than the ones that have typically been the "content" of training. In short: there will be more emphasis on understanding and less on remembering. Expert systems and other computer-based guidance systems will devalue the remembering of facts, or even procedures. Facts are available in quantity on the system. Problems of recall of facts will be supplanted by problems of: selection from an information bank stuffed with facts; spotting gaps in that

array of information; relating parts of it to other parts; and synthesizing vast amounts of information for easier use. "While it is true that computer-based automation continues to displace the human body and its know-how (a process that has come to be known as deskilling) the informating power of the technology simultaneously creates pressure for a profound reskilling" (Zuboff, 1988, p. 57).

Generic Skills

To equip the workforce with capabilities to deal with this more abstract, verbal, cognitive environment, education and training must increasingly stress the development of generic skills such as problem solving, critical evaluation, planning, and systematic decision-making. If, as predicted, many jobs will be continuously changing, employees will have to learn how to learn, to become self-instructors. Training must assist in the development of that ability. The trainer will be called upon to assist in the development of these skills, evaluating available training packages and designing and implementing training plans in these areas. On the other side of the coin problems associated with low level literacy may have to be addressed more often in the workplace itself. To compensate for a shrinking workforce, literacy skills must be developed in previously excluded people.

Job Description

More than new jobs are at stake. New conceptions of what a job is will challenge the training practitioner. Task analysis has evolved in the work environment of the assembly line. Traditionally, component tasks could be isolated into separate categories or assembled like beads on a necklace. New jobs are likely to involve not only higher level, generic, cognitive skills but will also be structured as integrated wholes. This means that job analyses and job descriptions will have to be approached from a different perspective and perhaps analyzed with different tools. It is almost as if each job was an integrated project with many different, interacting tasks involved. The trainer must have expertise in the areas of job and task analysis.

As well, the trainer has to recognize this qualitatively different reconceptualization of what people do. The prototype of the employee as an additional pair of hands executing a rather simple operation in a chain of tasks on an assembly line is inappropriate to the future. The future prototype more resembles that of the professional who has a complex set of activities and responsibilities and in whom these different activities are integrated. Thus the worker is recognized as a an individual rather than the executor of a particular task.

Loss of Natural Learning Opportunities

The loss of the natural ladder of successively more complex jobs in the work environment has clear implications for the trainer-practitioner. The gap to move a worker from A to B is now so much larger, and involves moving workers to jobs that they have no comprehension of. No longer can the trainer rely on the worker's prerequisite skills upon which to build a training program. In this situation the trainer has to deal with extremely naive learners who face a qualitative shift in skill and knowledge to enable them to perform the job. In order to effectively deal with this difference, the trainer-practitioner must plan for job change and maintain a global perspective with respect to an individual worker's fit within an organization. There will be a new emphasis on lifelong training and career/job planning combined with techniques for motivating workers and encouraging self-growth and development in others.

Changing Worksites

The increasing use of computer technologies at the work station will provide opportunities for on-the-job training, and more importantly, for performance guidance just at the moment when it is needed. One of the best examples of the integration of a performance aid with a computer is the Macintosh. As you work along on the computer you can summon up various kinds of assistance when needed. Furthermore the use of everyday words and symbols as well as the "mouse" pointer system, requires little pre-training -- the guidance is available at the moment of performance. Many more such job aids or performance support systems will be available on computers as will the more sophisticated expert systems. This means that the trainer-practitioner will be in direct contact with the learner during the execution of the job task as well as, or instead of, interfacing with learners in class situations. We might expect a surge in the use of on-the-job aids which can replace the former mentor system and provide particular, specific assistance at the moment of need. Included in this new technology will be the continued development of expert systems -- complex job aids which diagnose, guide and inform -- about which trainer-practitioners will have to become knowledgeable. Sophisticated skills of guidance and performance assistance will be required of those who design these support systems. In addition, trainers will need to become more expert in analyzing the actual performance, an analysis which derives directly from the task rather than from a body of knowledge or "content".

Joining the Business

As well, the anticipated changes in organizations will place new demands on the trainer-practitioner. The human resource expert can contribute to re-structuring the organization and dealing with the problems that such restructuring brings to the people in

it. The trainer will have to know the business and how it operates. S/he will need negotiating skills, knowledge of organizational development and of business operations.

Arching over all of these new demands and new opportunities for the trainer is the driving need for the organization to become leaner and more competitive. As a consequence, those in the training function will be "under the gun" to demonstrate that what they do addresses the bottom line. The training function will have to become more accountable and visible. One theme that will re-surface repeatedly in this report is the need for trainers to have ways of demonstrating the impact of their work on their organization. That demonstration may not simply be through traditional means of evaluation, although they are useful. The trainer-evaluator must also be able to develop inexpensive and straightforward means of proving impact. S/he must address issues of accountability, justification and perceived legitimacy with respect to the training function (Geis, 1991).

Finally, since many of the anticipated changes in the world of work will pose complex, multi-dimensional problems, the trainer-practitioner must make clear that s/he alone cannot solve them all. Only corporate management can produce and implement the strategies to accommodate or bring about change, strategies which include staffing decisions, compensation formulas, and product selection. In the face of many problems shouting for attention, trainers must ascertain which ones they can appropriately address with the resources, knowledge and skills available to them. Although human resource developers can make great contributions, gaining and maintaining the competitive edge is, after all, a major mission of the organization. Nor can the organization alone solve all of the problems which it faces in the coming decades. The government and the formal educational systems must in concert with business and industry address these problems. This is a point to which we will return later in the report.

THE PROFESSION: THE MISSION OF TRAINING AND THE ROLES OF THE TRAINER-PRACTITIONER

DEFINING TRAINING AND THE TRAINER-PRACTITIONER

Concurrent with changes in the world of work have been dramatic changes in the roles of the trainer-practitioner and the perceived mission of training.

The Traditional Trainer

Let's look at the traditional world of training. In it training is schooling which takes place inside the company. The mission of the training function is, simply, to supply training, often classroom instruction, as called for by managers or supervisors -- "reactive rather than proactive (Butler, 1989, p. 3). Training managers are often drawn from other divisions of the business and stay in the training function for relatively short periods of time. Trainers brought in from the outside rarely have knowledge of the organization, its mission and how it works. The trainer is essentially a school teacher, a stand-up instructor, a course developer, and a training purchaser in an industrial setting. Frequently, training is viewed by the organization as an add-on function, not integrated into the strategic plans of the business.

Requests for training by a manager or supervisor are often based on an ill-defined sense that all is not well. It is also assumed that (a) the problem lies in the skill and knowledge deficiencies of the workers and (b) the performance deficits will be remedied by instruction. The trainer is requested to take the workers with skill and knowledge deficiencies to the classroom, improve them and send them back to the job. Or, as one training expert put it: "The first sign something is wrong, a manager says, that person needs to be fixed so send him to a training course. And they go back to the work force and it (training) still hasn't fixed the problem" (Butler, 1989, p. 25). The critical diagnosis of what is wrong, what should be fixed and who should do the fixing is not subject to further analysis or discussion.

In this traditional world of training, the trainer and the training are isolated from the dynamics of the organization. Symptomatic of the isolation of the training classroom from the actual job performance environment has been the frequently expressed surprise, even by trainers themselves, that instructed behaviours do not transfer to the job -- training doesn't seem to be effective. And the reason given is often that "too many other factors influence performance" (Butler, 1989, p. 35). Too often, somewhere off in one corner of the company is a training function. Its agenda is dictated by others and it remains aloof from the performance environment offering training activities (solutions) for any and all performance problems delivered to it and evaluating its effectiveness in terms of the

number of learners served, classes and courses offered, and learner satisfaction as demonstrated by post-course questionnaire results.

A 'Shift' in Focus

Informed trainers have rebelled against this role and mission. They have recognized their own impotence and chaffed against the narrow definition of their role. In the past two decades the profession (and training in some leading edge organizations) has evolved quite a different picture of the trainer and of training. This 'paradigm shift' began with the questioning of a number of basic assumptions.

> The first assumption was that most human performance problems derive from skill and knowledge deficits. Human performance is a function of many influences: incentives, feedback, motivation, environmental design (opportunities and constraints), performance support (such as job aids), clarity of task description, information available and understood and, of course, knowledge and skills. Consequently, deficiencies in human performance (performance problems) can arise for a variety of reasons or several reasons in combination. A comprehensive "technology" of effectively dealing with human performance problems would consider all possible influences. Such a technology is evolving (see for example, Smith, 1986) and will be discussed in more detail below.
>
> The second assumption that has been challenged is that the purpose of the "training" function is to deliver training. The new human performance technology assumes instead that the purpose of training is to improve job performance and, more importantly, to impact on the organization's bottom line (be it dollars, service, or reputation). Performance technology's aim, then is not to provide training nor merely to improve performance, it is to make a positive contribution to the outcome of the organization. Gilbert (1978) made a critical distinction between performance and accomplishment; the latter being the effect or outcome of performance.
>
> The third challenged assumption was that the problems identified by supervisors could always be traced back to the worker. It may be momentarily satisfying to "solve" the problem by sending the worker for training. But very often, it has proven not to be the solution or at least not the entire solution.
>
> Fourthly, it was assumed that training could function effectively in isolation from the rest of the organization; it could be viewed as another secondary support service, like the print shop or cafeteria.
>
> Finally, trainees were seen as passive receptacles into which training was poured. The focus on training was on specific competency deficiencies; training was "laid on" the trainee in order to remedy those deficiencies.

During the past thirty years, several streams of theory and practice have converged to produce a "technology" of human performance: communications theory, the advent of new "technologies" such as the computer, applied psychologies of learning, and, most importantly, systems theory. This last perspective encouraged us to view individual performers as being responsive to, and influenced by: their own histories, the context of the organization in which they worked, and the immediate physical environment. It suggested that the causes of performance deficits could lie in any of a number of such areas; that the solutions to performance problems would require careful diagnosis to determine precisely which influences were at work; and that solutions would likely involve actions in several areas of influence. But, a technology is more than a perspective; over time the tools to do the tasks called for have been and are being developed. Human Performance Technology, and to some degree its companion discipline, Human Resource Development, have evolved along the lines suggested by this perspective. Obviously training with its focus on those problems caused by deficits in skills and knowledge and on its solution, instruction, remains a critically important part of the technology. The tools to carry out training tasks have developed dramatically in the past decade.

One consequence of the development of the broader Human Performance Technology has been a much more proactive and aggressive involvement with the whole organization. Today, many front line trainers recognize and accept this evolution. One training expert, at a recent focus group on the topic, noted that performance improvement is now "more than just training...it's about organizational learning" (Butler, 1989, p. 31). Another put it this way: "We go into the training mode but we shouldn't be there; we should be in organizational development mode. We should be looking at the structure of the organization which doesn't necessarily get solved by training" (Butler, 1989, p. 46).

What is Human Performance Technology?

The description of the emerging technology is documented in dozens of books (for example, Smith, 1986; Gilbert, 1978) and in hundreds of articles appearing in such journals as Training, Training and Development, and Performance and Instruction.

Thiagarajan (1978) notes that the various definitions of Human Performance Technology "contradict one another in some respects but almost all of them agree on several essentials:

- Instruction is an approach, but not the only approach to improving human performance...
- Instruction is not always the solution because sometimes people can do but won't do whatever it is you want them to do. Sometimes they can and will do, but something prevents them...You need different approaches to fix different problems...

- The domain of performance technology is the improvement of human performance -- of individuals, groups and organizations. Its core is a systematic process that involves analyzing needs, specifying goals, selecting strategies and implementing them...The performance technology process is a meta model: it tells you which model to choose to solve the performance problem..."

Jacobs (1987) offers an interesting comparison of the traditional and the systems approach which clearly indicates the critical distinguishing features of Human Performance Technology. An adaptation of this comparison appears in Table I.

TABLE I

	APPROACH	
	Traditional	**Systems**
MISSION STATEMENT OF THE T&D DEPARTMENT	To provide all types of training support services to all employees	To assist in increasing the effectiveness and efficiency of all individuals in the organization.
MEASURES OF SUCCESS	• hours of training • persons trained • classes delivered • media produced • instructional objectives accomplished • course catalogues	• job behaviours • problems solved • product quantity • product quality • lower turnover • job performance • lower absenteeism • cost savings to organization
ORIGIN OF PERFORMANCE PROBLEMS	Problems are brought to T&D department, Staff responds based on time and perceived importance of person bringing the problem. Less time for problem solving since much time is devoted to delivering courses.	Problems are brought to T&D department or the department anticipates problems from own independent analysis of projected personnel needs using forecasting methods. More time for problem solving since fewer courses are delivered on a scheduled basis.
AUDIENCES SERVED	All audiences of the organization are served, though distinctions are made, for administrative reasons, to separate T&D departments concerning technical/ skills training, supervisory training and management development.	All audiences of the organization are served with fewer distinctions being made to separate audiences served, recognizing the interrelationship of performance problems.

	Traditional	Systems
RELATIONSHIP WITH ORGANIZATIONAL GOALS	T&D is a support function often referred to as a cost centre as opposed to a profit centre. Little relationship with organizational goals.	T&D is a proactive function generating profits to the organization by documenting savings related to reduction in waste, turnover, defects, downtime. High relationship with organizational goals.
PERCEPTION OF OTHERS	T&D is the department that will provide training programs, schedule and organize special programs, review appropriateness of vendor programs.	T&D is the department that helps other departments analyze their problems and helps solve them using training and nontraining solutions. Plus special programs if they are consistent with goals.
STAFF SKILLS REQUIRED	• deliver training • lesson planning • media production • departmental budgeting • course scheduling • coordinating events • development surveys and questionnaires	• consulting • needs assessment • needs analysis • data collection • evaluation • research • cost benefit analysis • system design • long-range planning • plus, most of Traditional Approach
POTENTIAL FOR SURVIVAL IN DIFFICULT TIMES	T&D Department is one of the first to be eliminated T&D considered "nice to have" for benefit of employees	T&D Department may be eliminated but chances of survival are generally as good as the organization as a whole. T&D considered essential to maintain market competitiveness.

Jay Alden, Director of the University of Maryland's Center for the Study of Future Management, provides a framework which subsumes some of the familiar human resources programs under one umbrella of *human performance technology*. Alden (as quoted by Rosenberg, 1990) describes four major areas:

- *Human Resources Development* dedicated to improving the performance of individuals: "It includes education and training, career development strategies, individual feedback systems, individual incentives and rewards, and health and wellnes. .

- *Organizational Development* dedicated to improving the performance of groups and includes organizational design, team building, group feedback and incentive systems.

- *Human Resources Management* dedicated to managing the performance of individuals, and includes supervision, compensation, leadership, employee benefits, and personnel selection.

- *Environmental Engineering* provides the tools and facilities that support improved performance, and involves job aids, documentation, ergonomics and expert systems.

Concurrent with the development of *human performance technology* has been the evolution of *adult education*. It is less a systematic technology and more a set of values, principles, and strategies. Nevertheless adult education shares with the technology common principles (see Geis, 1986.) Among the many contributions it can make to training, perhaps its greatest one is perspective. It views the learner as a partner in the development of agreed upon goals. Such a view is very different from the one mentioned earlier which sees training as an externally generated intervention or "treatment" and views the learner as a passive recipient in the process. In terms of human values, the *adult education* perspective is more attractive: learning is participative and interactive and aimed at the individual's own development. But from a hard nosed point of view as well, these values underly more effective training. Trainers who model themselves after traditional school teachers, involved in the task of passing information to a somewhat resistant and recalcitrant group of potential learners, are likely to be less effective in their efforts than those who incorporate *human performance technology* and *adult education* strategies and techniques.

Human Performance Technology and Adult Education

Obviously the shift to the perspective of *human performance technology* and *adult education* has implications for trainers which will be discussed below. But it also has

implications for management. As we have noted, traditional training has sometimes been the dumping ground for many problems that may be traceable to organizational disorders. Training has been ameliorating organic disorders in many organizations and has directed attention away from root causes. In some cases it has prevented the rest of the organization from addressing those systemic problems by attenuating their symptoms. Those in the organization outside of training may not be ready to look directly at such basic problems.

There is no consensus among employers as to what the training function is, let alone what it should be. Training is often seen as having little value. One example: a recent Sales and Marketing Management survey showed that half of the respondents indicated that their sales would not be affected if the training program for experienced salespeople was dropped (Keenan, 1990).

Because the training function is often ill-defined and its contribution to the organization poorly demonstrated, it can only make a weak case for funding (Ontario Premier's Council, 1990). Despite the widespread recognition that the process of restructuring requires a new approach to training, companies have been slow to make the necessary changes...The overall amount of training in industry falls far short of the perceived need" (p. 91).

NEW CHALLENGES AND TECHNOLOGIES FOR TRAINING

The previous examination of the field itself has revealed dramatic changes, with the traditional trainer providing but one of the roles needed to carry out the mission of improving human performance. Now let's look more narrowly at the specific area of instructional design, development and delivery. This is the one that many trainers focus on; here too there have been large changes. They have occurred in five areas: the learner, the delivery system, the site, the content, and the knowledge base within instructional systems design.

The Learner

As already noted, the "student" population for training has been changing and will continue to do so. Nominal recognition of individual differences has been common among adult educators. As has been noted several times, the implementation of the principles and values of Adult Education are important if training in the next decade is to be effective as well as humane. In the next decade, dramatic differences among individuals will present themselves to the trainer -- older and more "experienced" people, people from different cultures, and people with severe literacy deficiencies to name a few. "In the 'assembly line' era, educators taught students in 'closed classrooms', delivered the

lesson at a single speed to an entire class of students, regardless of individual abilities or interests" (Blazey & Davison, 1990, p. 53). Trainers will no longer have that luxury. The single learner will replace the class as the unit of instruction.

As well, the trainer is increasingly called upon to serve a higher level management of information and learning needs as evidenced by the proliferation of management training programs, executive workshops on cross-cultural communication, etc. The expert trainers with a history of developing skills for production line workers may face new "curriculum" demands for which they (the trainers) are not yet prepared. Some future training will be organized around a process or production rather than around a skill. The learner group will consist of all of those involved in contributing to (in different groups) the process, rather than all of those who are requiring the same skill. Imagine training an operating room team of health professionals as contrasted with training a group of nurses to use a thermometer. Trainers faced with "production/process classes" must plan and behave very differently than traditional classroom teachers. How to develop appropriate training or select from vendors of such training will be the challenge.

The Delivery System

There exists a blinding array of amazing technological aids for the trainer to consider: Computer Based Training (CBT), Computer Managed Training (CMT), Computer Aided Design (CAD), Interactive Video Disc (IVD) and so on. Future needs of the trainer-practitioner will be generated by the very presence and availability of these technologies. The new medium becomes the training solution; and the training needs of the trainee become a secondary consideration.

Experience has shown that all too often the tool takes control of the user. Trainers who have become involved with computer based training often only become skilled in responding to a very demanding computer system. Once having mastered its complexity they dash around looking for places to initiate CBT (and to demonstrate their new found expertise). Especially in a business which will be looking to make every penny count, the basic challenge will be to produce critical changes in human performance -- effectively and efficiently. Any technology, no matter how glamorous or exotic, no matter how wondrous the claims made by its vendor, should remain subservient to the training need. And none should consume costs (including trainer and designer time) which exceed the benefits of training.

Having thus cautioned about a pitfall of the new hardware technology, we should note the attractive, positive side. IBM predicts that its employees "can expect to benefit from customized instruction modules suited to individual skill needs. They can expect to be able to learn what they need, when they need it, at their workstations or just about anywhere they can carry an electronic notebook. They can expect to have access to an

educational network that will select learning modules from sources around the globe and aid translation from one language and cultural nuance to another" (Galagan, 1990, p. 37).

One attraction of the new hardware technologies is the increased mobility of instruction. When there is no particular reason for assembling learners in the same spot (i.e., in a classroom), the communication technologies allow instruction to take place elsewhere and individually. They can also provide the learning experience when it is convenient to the learner and in "bites" appropriate to him or her.

A second attraction is the opportunity for interaction. Responding, practising and receiving feedback are critical elements in learning that are often omitted in traditional classroom teaching. The new instructional systems can engage the learner in simulations of the actual job, or require learners to demonstrate understanding or skill before moving to the next segment. To cite just one example. At the Lincoln College of Law, University of Nebraska, law students, using a videodisc system, can act as opposing counsel in a realistic, simulated trial. Periodically they can raise objections or make points, changing the course of the presentation.

A third attraction is ease of updating. New examples, procedures, and rules can be integrated into many of these systems with less time and effort than required with conventional display modes such as print, television, film or slides.

The opportunity to collect learner performance data is another positive feature of many of these systems. Tryout and revision are keystone concepts in systematic instructional design. Despite their commitment to the principles, instructional developers report that they are often forced to neglect those principles in practice due to time and dollar constraints (Burt, 1988). Obtaining data on the effectiveness of the learning materials as well as on a particular student can be done with relative ease in many of these systems.

The Site

Perhaps the most important application of new technologies will be their use in providing workplace learning experience and performance guidance. Money can be saved and "transfer of training" increased if a blend of guidance and instruction is available at the job site just when it is needed, particularly if the worker uses a computer (e.g., a bank teller, a hospital record keeper, a currency exchange agent). Typically this technology is referred to as "embedded training", although the term ignores the important performance assistance function. It is a tool, like all the other tools the worker has, which enhances performance. Access to expert advice while on the job is another feature of computer and advanced communication technologies which offers immediate and custom tailored aid to the worker while on task.

The Content

We have already noted that with the redefinition and upskilling of jobs the trainer will be faced with new contents to teach. One of the most important trends is toward the development of expert systems (Harmon & King, 1985; Harmon & Sawyer, 1990). Essentially complex and sophisticated performance aids, these systems provide heuristics to guide such tasks as diagnosis and decision making. As well, they often contain large information banks to which the user can refer. The development of such systems requires extension and expansion of the skills and knowledge of the average trainer and yet it will often be the trainer who will be asked to select, develop and implement these systems.

Instructional Design

The phrase "new technologies of instruction" conjures up a picture of bells and whistles, of flashing lights and whirring computers. But the trainer will be challenged as well by developments in another technology: the technology of instruction. Each addition and refinement in this technology has not been announced with the overtures that accompany the birth of a new piece of hardware. But new systems, new products and new knowledge continue to emerge from it. Systematic instructional design (Gagne & Briggs, 1979; Mager, 1988; Dick & Carey, 1990) has moved from its spindly infancy to a well-established body of knowledge and techniques.

In the area of needs analysis, for example, techniques have been developed and described which can be of great aid to the trainer (Harless, 1975). Similarly such topics as task analysis and formative evaluation are being enriched with large and useful new literatures (Carlisle, 1986). Theories of instructional design have begun to be articulated (Reigeluth, 1983). Applied Cognitive Science has moved toward addressing the needs of front line trainer-practitioners as they deal with developing more complex and higher level skills. Better techniques for the presentation of information are another area of growth in research and development (Fleming & Levich, 1978; Jonassen, 1982; Wurman, 1989).

In short, a decade ago, the knowledge base that informed instructional designers was far smaller and less sophisticated than the one that will be available by the year 2000.

IMPLICATIONS FOR TRAINERS AND TRAINING

We noted earlier that the worker in the year 2000 will likely have to learn a lot of new things about the job. Obviously trainers are not exempt from that observation. This review of trends in the training profession clearly suggests that moving into the next decade the trainer- practitioner should be familiar with the systems approach to training and to instructional development as represented by Human Performance Technology.

The many roles suggested by the expansion of the technology has led several observers to suggest that training will become increasingly differentiated -- that different individuals will represent expertise in such areas as evaluation, media, job/performance aids and instructional design. Everyone has a favourite list of trainer roles. We will return to these categories later in the report.

To some extent differential staffing has already happened in large organizations where teams of specialists make up the training division. Symptomatic also is the sizeable use of outside consultants, many of whom have particular areas of expertise.

Some trainers may opt to assume a new role within the new technology of human performance. Others may decide to pursue the former role of instructional or media specialist. If one had to choose a single area of skill and knowledge suggested by the new technology which applies to all of these jobs it would be *problem analysis*. The new technology places primary emphasis on the explication of the problem (front end analysis; performance analysis; needs analysis) It is the sine qua non of problem solving. It guards against premature solution implementation--the "ready-fire-aim" syndrome. Any trainer must be familiar with the strategies and principles of Adult Education. The application of systematic Human Performance Technology embedded in a school teacher model violates the principles of that technology itself, ignores the advances in Adult Education, and is likely to lead to ineffective training. The inclusion of the learner in the development of instruction is well recognized in Human Performance Technology. At each step in the development of a performance improvement activity, need for the learner/user's contribution is explicit. For example, proper needs assessment and front end analysis includes the input of all relevant stakeholders; formative evaluation involves obtaining feedback from the potential learner/user in order to make the improvement intervention more acceptable, effective and satisfying.

Regardless of the particular role chosen, the trainer will face a new organizational environment. The mission of training as perceived by those in the field will require greater familiarity with the organization as a whole and with the particulars of the business and its markets (for a further discussion, see Butler, 1989; Warshauer, 1990). Trainers who have been isolated from the day-to-day working of the organization will either proactively make the move into the organization's main stream or will be dragged there by management's new recognition of the vital role of human resource development. Trainers will have to learn some generic things about organizational development management, as well as the details of how their own organization functions.

Learning about the organization and how it works is part of the trainer's task; equally important is paying attention to the needs and values of the person to whom the improvement activity will be directed. If the trainer is not familiar with the views of individual workers and their community organizations, s/he will not be able to involve them in the participation required in organizations in the next decade. So, the trainer

should be knowledgeable about and sensitive to the views of employees and the labour organizations representing them, in order to encourage partnerships in performance improvement and employee development.

Trainers will have to learn about the new technologies of training (Langdon, 1978-1980). Not all of them will plan to become experts in the various systems that are becoming available. But a competent trainer will have to know generally what opportunities exist, when use of the technologies is appropriate, whom to contact to find out more or whom to engage for expert consultation (Reinhart, 1987). One major use to which new technologies will be put will be in work station training and performance aids. On-the-job or embedded systems will replace classroom instruction in many cases. Unfortunately, there is only a small literature to inform the trainer-practitioner about structured, on-the-job training (see for example, Rothwell & Kazanas, (1990)). Expert systems will organize and provide quantities of useful information when it is needed. The role of information presenter has begun and will continue to fade as a prominent one for the trainer-practitioner. Instruction and performance systems will contain as much as, or more than, and will present performance support as well as, or better than, the traditional classroom trainer. The trainer-practitioner will be involved in selecting, managing and integrating those systems as well as developing software for them. Trainers will rapidly have to become acquainted with the systems, and even more so with the emerging technologies of job aids.

Several areas of expertise are required in the design, development and implementation of these guidance systems (Carr, 1990).

- New work/guidance systems must be based upon clear understanding of the group who will use them. Traditional instructors may pay lip service to knowing the learner group but often fail to obtain and use vital information about their learners.

- If systems are to be used without pre-training they must be at the user's entry level. System failures cannot be blamed upon the ignorance or lethargy of the user. The trainer has to be skilled in the techniques of analyzing skills needed and diagnosing existing skills in the user population.

- Information must be packaged so that it is clear, placing no excess burdens upon the user; if additional understanding is needed it should be provided by the system. The trainer should become expert in developing clear instructions which stand alone and do not need the trainer to interpret or clarify them. (Think of those atrocious manuals that too often accompany computer software. You need the programmer to lean over your shoulder to translate them into useable language).

- No matter how skilled the designer is, things do go wrong and people do misunderstand. "Help sub-systems" should be incorporated into the overall system. Trainers must become skilled in predicting error in the learning process (troubleshooting) and in providing appropriate assistance. We are socialized into a world of schooling. Learners are afraid to admit mistakes or confusions; teachers often cannot analyze and remediate those errors that do surface. Skill in doing these things is crucial in the design of useful help systems.

The use of computer-based instruction does not simply mean transferring traditional instruction to the computer. "Effective courseware will be problem -- not content -- oriented" (Butler, 1989, p. 52). For trainers to become effective instructional designers they will have to learn how to centre their instruction on performance rather than information (Bowsher, 1989).

The trainer of the next decade must become familiar with the changes in the broad field of performance technology as well as with the specific hardware and software technologies which provide the tools for improving human performance.

TRAINERS AND STAKEHOLDERS

So far, this report has discussed the environment in which trainers will be working and the perceptions of the field of which they are a part. In this section we will examine the perceptions of trainers themselves and of those who are related to the training function, primarily employers and government agencies.

WHO ARE TRAINERS?

It is not easy to delimit the term *trainer* "... (T)here is absolutely no consistency to job titles in the training and development field. Underlying this is the fact that training and development jobs are not standardized. What a trainer at company A does may have little relation to what a trainer does at company B" (Wallington, 1981, p. 49).

Most training in fact, is informal and takes place on the job usually under the direction of a supervisor or "master performer". A number of medium and large sized organizations do have in-house training staff (often reporting to a Vice-President Human Resources or equivalent). There are numerous private vendors of training materials, courses, workshops, and services. Also, labour organizations are adding training staff to assist members especially in generic skills training. Finally, formal educational institutions, in Ontario, particularly the Colleges of Applied Arts and Technology, provide training for future employment, upgrading and re-training. There is no uniform preparation for, or standard certification of those who call themselves trainers, in fact, most have picked up the necessary skills on the job (Lee, 1987).

Therefore, if you decided to ask trainers about their needs, you would be hard pressed to know whom to ask. In this report the focus is on those who think of themselves as full-time trainers, who identify with the training profession and who are employed in the area either in an organization such as a business, hospital or government agency, or who are private vendors of training. The section does not focus on the colleges' role and personnel since that is continuing to be discussed and is dealt with elsewhere in the literature (see for example, Mayer & Coldeway, 1990; Ontario Ministry of Colleges and University, 1990). And it only glancingly deals with the part-time, supervisor-trainer, the woman or man for whom conducting training is a small part of their job although they do constitute a large percentage of the population.

An obvious source of needs statements would be the people who hire trainers. Unfortunately, as Lee (1987) suggests, many training managers are not sure what they want nor are they skilled in identifying the particular capabilities which would best serve their needs. In his article he quotes David Brinkerhoff, president of Abbott Smith Associates, a placement company for HRD personnel: "The training and development field has become measurably more sophisticated and diversified over the last 10 years.

You've got everything from human resource planners to quality circle trainers -- who'd heard of that 10 years ago? Training managers have got to know what the hell they want" (p. 23). Although they may be fuzzy on details of the job description they tend to weight heavily having a business head and knowing the business. That may be why the preference is often to select or promote from within the organization.

SURVEYS OF TRAINER NEEDS

Despite the lack of clear role definitions for trainer-practitioners, a number of trainers and training directors have been surveyed in regard to their professional development needs. The results of a number of these studies are highlighted in the following sections.

The Fortune 500 Survey

In 1988, Training and Development Journal carried out a questionnaire survey of HRD managers and professionals in the Fortune 500 companies in the United States (Stephan, Mills, Pace, & Ralphs, 1988). One question asked was "How important is it for an HRD/management development staff member in your company to know about the following topics?"

The resulting top-rated topics identified were:

- delivery methods (games, simulations, on-the-job training (OJT), behaviour modelling)
- management behavioral processes (management styles, groups, leadership, communication)
- delivery modes (media, presenting)
- design procedures (stating objectives, sequencing material)
- evaluation procedures (measures of trainee satisfaction, information gained, skills acquired)
- management functions (planning, organizing, staffing).

There were a number of other interesting findings. Management training for executives tends to be university-based or uses outside consultants, while the training of middle managers and supervisors uses primarily in-house staff. Reinforcing a recurring theme, management was reported as most often describing the primary role of HRD as "providing

training and training activities". HRD experts stated that the biggest challenges facing HRD professionals in the company will be coping with the technology of training and building and maintaining credibility within their organizations.

The Training Directors' Survey

Typical of a number of such surveys which appear periodically in the literature is a recent one by Klepinger of Apple Computer (1990). Training directors in thirteen, mostly large, American companies were contacted to gather information about development programs for designers and developers.

- About one third of the companies said that instructional designers should be subject matter experts.

- Three quarters of the respondents indicated that their designers should have formal training in instructional design. They disagreed, however, about what such formal training should be.

- It was common for companies to employ some systematic approach to training their designers, whether through an affiliation with a college program or through in-house courses.

- Five essential general skill areas in which trainers were seen as needing to upgrade their skills were:

  Instruction such as basic systematic instructional design; non-traditional training; evaluation; and teaching.

  Management skills such as time management; selling; team building; coping with change; and interpersonal skills.

  Technical skills such as special training for job-related tasks; knowledge of internal products and computer skills.

  Non-technical skills such as effective business writing and speed reading.

  Personal skills such as effective listening; problem solving, assertion; communication; and knowledge of business principles.

Respondents described a number of specific topics that they planned to offer in their trainers' courses in the near future. Topics fell into three areas. *Technical knowledge* included those topics dealing with the new technologies of training. *Design skills* was an

area in which respondents sought to upgrade trainers in basic topics such as analysis and evaluation. *Management skills* included topics related to finance, project management and organizational development.

The TIP Reports

The Training for Improved Performance (TIP) Project was a three-year research and development project carried out through the Centre for Distance Education, Athabasca University. A major focus of the TIP Project was the professional development needs of trainers. Researchers on this project conducted a needs assessment survey in four provinces (Alberta, British Columbia, Quebec and Ontario; Mayer & Coldeway, 1990). Structured interviews were carried out with senior HRD personnel in a sample of organizations in each province.

- Survey data revealed that training decisions are usually based on the perceived value of training as a solution to a specific job-performance problem.

- The report confirmed earlier observations: most organizations in Canada do not have full-time trainers; the responsibility for training is seen as a part (and usually a minor part) of line jobs.

- Respondents reported that most trainers are subject matter or performance experts who have had little or no formal professional training background. Thus, the people who conduct training in most Canadian organizations are not professional trainers who are part of the training community.

- Employers frequently hire graduates of industry-specific programs of the colleges (and universities). Although they generally report satisfaction with the graduates, they often note that these programs provide only a general preparation and that complete preparation of new graduates requires specific orientation and training in the organizations they have joined.

- To the extent that "trainers" had some relevant preparation the emphasis was on presentation skills and not on design, development or evaluation of instruction skills.

In the Ontario section of the report it was noted that most trainers who have to design their own courses believe that they are not particularly skilled at this function and could do better if they had systematic training. On the other hand, as a group, the trainers

indicated that only a few individuals -- those who were responsible for designing courses -- needed to know about such things as needs analysis, program design and program evaluation.

Finally, with regard to evaluation, the Ontario report notes that "trainers talk about evaluation but don't really do it, don't know how to do it and really don't believe that their superiors care if they do it, except with respect to highly specific job skills" (Mayer & Coldeway, 1990, p. 24).

The Conference Board Survey

In the Fall of 1990, the Conference Board of Canada in conjunction with Ontario Training Corporation completed a mail survey of 440 Canadian organizations (most of which were medium to large sized) which addressed training and development practices and expenditures in Canada (Blue & Larson, 1991).

Preliminary data from the survey suggests these conclusions:

- Over half of the companies responding have a distinct training and development department. (This is a sizeable increase from the one third that reported such a department in its 1988 survey).

- Almost half of the total training and development activity is controlled by line management. Two thirds of training is designed and delivered by internal staff.

- About one-third of the companies predicted an increase in the size and budget of the training function in the coming two years.

- A little less than half of the companies provide internal train-the-trainer programs. Many companies support conference and professional association attendance. There is a heavy emphasis on the use of external sources for professional development of the training staff. As well, employee training in certain areas such as language training, basic literacy and numeracy and executive development, is from external sources.

- Highly ranked among the critical training and development needs for the near future were:

    - for executives -- strategic planning;
    - for management -- management and supervisory skills;
    - for professional/technical personnel -- technical knowledge and professional upgrading

- for sales and marketing staff -- sales and customer service;
- for clerical/office workers -- computer training
- for production staff -- technical/knowledge
- for service workers -- customer service
- for the trades -- technical knowledge.

- Only 25% of the companies reported conducting needs assessments in order to determine training needs. Evaluation of training most often consists of trainee reaction measures. Nevertheless, there was a relatively high level of satisfaction with the results of training, although respondents suggested that some things could be improved.

- With regard to delivering training, few companies use sophisticated training software.

The most critical training and development challenges foreseen were: a need for increased resources; a need for increased commitment to HRD by senior management; and the provision of needs analysis at the corporate as well as the individual levels. These results are echoed in the answers to another question which asked what the next step was in improving the training and development function. The most frequently stated needs were to: (a) increase the commitment to training; (b) link training and development to the corporate mandate; and (c) implement needs analysis.

The Butler Report

In 1989, Butler Research Associates prepared a report for Ontario Training Corporation on needed training skills in Ontario. The report describes the outcomes of three focus groups comprising fourteen training experts drawn from both the private and public sectors. Among some of the findings:

- There is a critical need for improving skills training in Ontario but this need is not widely recognized by the public or in the business and education sectors.

- Once again it was pointed out that there is no uniform policy for becoming a trainer or a procedure for recognizing qualified trainers, no widely recognized standards or accreditation procedures.

- Without prompting, there was a lack of recognition among participants that most training occurs on the job and that it occurs in small and medium sized business. That is, "training" was first thought of as occurring in large organizations with established training staff.

- Training is perceived of by executive management as a secondary support function; respondents urged that it have some representation at the executive level.

- The low status of training in the organization may be accountable in part to the trainers' lack of understanding of the organization's mission.

- There is too much emphasis on "products", for example, the training course.

- There are no systems in place for evaluating trainers or training products. Training managers have a difficult time choosing the appropriate products from those available from vendors.

Additionally, the focus groups suggested that:

- Training interventions tended to be traditional classroom courses, i.e., that the trainers failed to take advantage of new training technologies.

- Training offerings are not sufficiently customized for trainees.

- Training activities tend to be reactive rather than proactive.

With few exceptions (e.g., sensitivity to learner differences and instructional design and teaching skills), the summary list of qualities for the ideal trainer which the Butler Report (1989) provides is one that could apply to any ideal management level employee: flexibility, adaptability, creativity, ability to motivate, interpersonal skills, and communication skills.

The report further suggests that trainers need four general skill areas: strategy, consulting, design and hands-on teaching.

OTC/IBM Focus Group

In October, 1989, Ontario Training Corporation in cooperation with the Decision Support Centre of IBM, held an electronic conference or focus group which examined the current needs of training managers.

The perceived needs of trainers emerging from this focus group were:

- an "understanding of the business"

- skills and knowledge in the area of organizational development

- knowledge of the strategic approach to training (ability to create a strategic training plan)
- general management skills (including financial skills)
- greater familiarity with selling skills (creating a market for the training group's services)
- the ability to model leadership
- skills in the area of human resource integration
- skills in evaluation (sensitivity to matters of effectiveness and efficiency)
- expertise in performance technology
- an understanding of technology and training technology (an appreciation of technology's impact on the world of work and the worker) (Ontario Training Corporation 1989).

Comments from other sources

Other 'commentators on the training scene' have suggested general areas of trainer needs, many of which have been mentioned earlier.

The expectations of the clients of trainers represent an important consideration in the needs analysis. Employers rarely express profound criticism of the training function. However, statements by trainers and clients repeatedly reveal that training has low status in most organizations. And this is reinforced by observations regarding low budgets, vulnerability to cuts, and lack of access by training staff to the upper echelons of management. Despite the laudatory statements about education and training by CEOs, training is frequently seen as being quite adjunctive to the central focus of their organizations. And from labour's perspective, the training focus needs to shift from job specific to more generalized skills of the job tasks.

The needs of management imply new needs for trainers. "As the automation of the workplace increases, HRD will have to focus their offerings on helping management to:

1. deal with a redistribution of power, since information is the key to power and it will be dispersed;
2. design jobs that are more individualised, while tasks are grouped together for teams;

3. promote process management which features collaborative work groups which are more self-regulating and self-coordinating;

4. use socio-technical work systems designs to improve performance and results; and

5. manage knowledge-intensive employment when computers permit control of work more closely" (Harris & Harris, 1983, p. 28).

Labour is, of course, an important client or stakeholder group and no less important are the issues labour faces with increased automation, changing skills requirements and an aging workforce. Broadly speaking that group includes all of those who would be affected by training. More particular and visible is the voice of organized labour. The Ontario Federation of Labour (1989) has forcefully brought forth a perspective on training that challenges an older model (Task Force on Human Resource Planning, September 1989). Training has often been thought of as the means by which employees are prepared to adapt to the organization and contribute to productivity. The trend, expressed by organized labour as well as others, may be toward a new view: that access to work and access to the training which prepares people to work, are rights. Training is also seen as a means to increase equity in the labour market (e.g., for women, native peoples, and visible minorities). And furthermore, it is stated that training, like education, should contribute to the individual's growth and development. This difference in perspectives -- training for productivity or training for opportunity -- is not a trivial one when considering trainers' and training needs. It suggests major changes in the orientation of the trainer as well as in the specific content of training.

IMPLICATIONS FOR TRAINERS AND TRAINING

We can notice increasing agreement as successive sources of needs information are consulted. Much of what comes out of the trainers' and employers' surveys reinforces points that have already been noted in previous sections of this report.

Instruction and Performance Improvement

One category of perceived needs concerns the traditional trainer role; it includes those needs related to expanding and honing skills in the areas of instructional design, presentation skills and training technologies. Many trainers report that one area they feel confident about is presentation skills, probably because many have had some formal instruction and/or extensive experience in teaching. However, continued criticism of the degree to which trainers have mastered these skills by observers and trainers themselves suggest that even in this traditional core area there is often room for improvement

(Broadwell, 1989). Less confidence is shown in matters of the design and development of instructional systems. With regard to new technologies, the classroom instructor may well be faced with all of the difficulties of a distance learning teacher plus the complexities of a new technology. Skills in designing instruction should probably be addressed first, with specific knowledge about a particular technology following as a close second.

Team Player

Repeatedly there is emphasis on finding ways to join the business as a partner equal to that of representatives from marketing, sales or product development. Many different issues need to be addressed in this context. Trainers need to know the business, that is clear. The business or the organization is about something: selling shoes, satisfying diners, or curing ill patients. It is not about training. To the extent that the trainer is unaware of the mind-set of others in the organization, s/he will continue to be isolated.

Some respondents in these various surveys have suggested that trainers "get out" more, perhaps rotate among the various departments in their organization. A second means of becoming a part of the team relates to evaluation. Trainers must learn to show how their efforts address the organization's primary functions. At the same time, they must develop economical solutions for the problems which they tackle. Training departments will continue to be considered a secondary support system, a cost, or an expendable "nice, but not necessary" budget item, as long as they fail to demonstrate that they operate as economically as the other functions and that they are concerned with the company's primary mission.

Proactive Strategist

The surveys, as well as the other sources, stress the need for the trainer to become an aggressive and articulate member of the strategic planning team; someone who is able to spot problems on the horizon and prevent them from drawing nearer; and someone who constantly demonstrates training's critical role in the organization's success. The passive, reactive role of the training function not only demeans the function but also deprives the organization of the needed inclusion of human resource considerations in its planning. A recurrent theme is the need for trainers to move into planning and decision-making, to present training needs and opportunities rather than to react to others' requests.

Respondents indicate that their organizations are uninformed or naive about the training function. If that function is to increase its value, its members must actively change the perception of upper management with regard to its present activities, its purpose and its potential. Skillful communication, a knowledge of company politics, and a record of assisting others (e.g., supervisors) in solving their problems can help in this educational mission of the trainer.

The concerns of the training division fail to impact upon strategic business planning for a number of reasons. "First, training is seldom tied directly and explicitly to company mission. Second, training is quite often past oriented, intended more to maintain or perpetuate the status quo than to preparing people for dealing with future conditions they may face as the environment changes. Third, training is usually a short term effort" (Rothwell & Kazanas, 1990, p. 43).

Problem Explicator/Diagnostician

A key element in systematic instructional design is front-end analysis -- the explication of the problem, determination of its true causes and the provision of alternative solutions. The respondents in the surveys repeatedly returned to the need for trainers to be skilled in such analysis. This set of skills will be more highly valued in the future than the ability to provide a single solution -- no matter how skillfully crafted -- for all problems.

Deviser of Multiple Solutions

The trainer must become familiar, at least at a basic level, with other -- non-training -- solutions to performance problems. This means acquiring increased knowledge in those areas discussed at the end of the previous section, for example, motivation, job aids, and feedback.

Artist Rather Than Craftsman

Rather than simply applying known solutions, the trainer will be asked, first, to diagnose the problem situation, and then, often, to devise new solutions for it. The trainer must be skilled at formulating new, alternative ways of viewing and solving problems (see for example, Bell, 1983).

OTHER SOURCES: MODELS, CURRICULA AND STANDARDS

Models of training, instruction and performance technology also suggest what areas of competence trainers should have. Similarly, curricula to train trainers imply what skills and knowledge are needed, in the eyes of the academics at least, in order to become a successful trainer. Finally, standards (i.e., kinds and degree of mastery of competencies) generated by professional associations directly address what these groups consider to be the essential needs of trainers. Each of these sources has been examined and will be discussed and compared in this section.

MODELS

There are few comprehensive models of performance improvement. Most of the literature has addressed, in some detail, the area of instructional systems development (ISD, or ID). However, since the basic concepts used by performance technologists and instructional developers are almost isomorphic (e.g., analysis, development, evaluation, diffusion, maintenance), it might be said that Performance Technology (PT) is an elaboration of and extension of the ID model.

An examination of the models of ID in the literature is justified for several reasons:

- The literature has focused on these models and rather sophisticated commentary about them is now available (e.g., Reigeluth, 1983)
- The models specify in some detail the competencies in one of the areas that are critical to the work of most trainers, i.e., instruction.
- The models, with some expansion, provide an embryonic model for the performance technologist.

Widely accepted ID models have been presented by Dick and Carey (1990) and many others. In 1980, Andrews and Goodson reviewed a large number of such models and noted the sizeable amount of overlap among them. More recently, Taylor and Doughty (1988) carried out a more detailed analysis and extracted from them 12 major tasks which the models suggest for an instructional designer or team of designers:

1. Needs assessment
2. Goals and objectives specification
3. Resource and constraint analysis
4. Target population description
5. Task analysis
6. Test construction
7. Instructional sequencing
8. Instructional planning
9. Media selection
10. Instructional materials specification
11. Materials production
12. Formative evaluation

A slightly different approach was taken by Schiffman (1986). She describes five different "views" of instructional systems, essentially five models held by participants in and observers of the field. Each of these views, listed below, represents a cluster of competencies and level of competence.

- The "Media View" sees the instructional designer as an audiovisual specialist whose main skill lies in selecting the medium for instruction (e.g., slides, videotapes).

- The next view, an "Enlarged Media View" somewhat expands the tasks expected to include that of media production.

- The third, the "Narrow Systems View" adds some front-end analysis to the process and implies such requisite skills in these areas as establishing goals and conducting task analyses.

- The "Standard Systems View" corresponds to the models examined by Andrews & Goodson (1980) and Taylor & Doughty (1988).

- Schiffman then proposes a version of the "Instructional Systems View" which: (a) requires identifying problems and discriminating which ones are appropriately addressed with instructional solutions; (b) includes the task of diffusion; (c) requires consulting and interpersonal skills and; (d) includes project management activities such as proposal writing, planning, budgeting and staffing. In fact, her description closely approximates the one proposed, in an earlier section, for Performance Technologist. However, her focus is primarily on instructional solution skills as the core of that role.

ACTUAL AND PROPOSED ACADEMIC PROGRAMS

Academic Programs

Various descriptions of academic programs designed for trainers are compiled with some regularity (e.g., ASTD). They indicate that there are more than two hundred undergraduate and graduate programs in the United States and Canada. This count does not include the many individual courses also available in colleges and universities. And then there are the hundreds of workshops offered by private companies.

A large percentage of these course, program and workshop offerings emphasize presentation skills for the trainer; many focus on instructional media; and a sizeable number comprise elements of the broad area of Human Resource Development. A closer

look at some curricula that are being offered and some proposals for curriculum will reveal how academics perceive and address needs of the trainer.

Pace, Peterson & Portor (1986) report on a survey of training and HRD programs in American colleges and universities which compared curricular elements with the competencies found in ASTD's Models for Excellence. In the 116 responding programs it was found that different disciplines/departments (most frequently programs are in the departments of Instructional Media, Education and Adult Education) emphasized different roles. In general, however, the highest ranking role-cluster was the one that includes instructional writer, media specialist, theoretician and program designer. The role of program designer was emphasized most and that of marketer emphasized least. Which of the 31 ASTD competencies were represented in course work in these U.S. colleges and universities? The most frequently taught were: organizational behaviour, presentation skills, preparing objectives, understanding adult learning, feedback skills, group process skills and writing skills. Among the infrequently taught were cost-benefit analysis and negotiation skills.

Silber (1982) provides a look at nine U.S. university graduate programs aimed at training instructional developers. The analysis includes categorization of some 82 ID-related competencies into five *domains of instructional technology* functions and 15 competency areas. As might be expected the doctoral programs included more theory than did the master's. There was also less emphasis on hands-on instructional development in courses, with internships being used to develop practical skills (for example, see Bass & Duncan, 1981-82). All institutions offered how-to ID courses. Models and orientation to ID varied from program to program. Course work in organizational development (as well as faculty development) and performance analysis was notably lacking in most graduate programs.

Of the five domains, programs emphasized two: *research/theory* (about 45% of program course time) and *design* (about 25% of program time on average across programs). It should be noted that there was considerable variation from program to program in how course/weeks were allocated.

In *research/theory* the emphasis was on abilities to conduct and cite research and on knowledge of broader educational technology theories; less emphasis was placed on ID theory itself. Theories from other fields was another area of emphasis although, as Silber (1982) points out, "Few institutions exposed students to all the possible fields from which theories and principles could be derived and applied to ID" (p. 23). In the *design* area, programs on the average devoted relatively little time to front-end analysis, non-instructional performance solutions, or learner/setting analysis. The emphasis was on instructional strategies and activities, job/task/content analysis, and to a lesser extent, on objectives/tests.

The area of *organization and management* (e.g., diffusion, organizational change) comprised about 15% of program time, *evaluation* (e.g., formative & summative; product & process) about 10%, and *personnel management* functions (e.g., consulting with subject matter experts, supervision, communication) about 5%.

Each institution tended to focus on one competency or sub-competencies (e.g., task analysis; evaluation). Consequently, these global averages do not accurately portray any one program; but they are suggestive of where academic graduate programs place their emphases. Silber (1982) says: "It does seem to make sense that if a competency is deemed to be important, and if students do not possess it when they enter the program, then some type of experience should be built into the program to assist the student in attaining it" (p. 26). The fact that certain areas are emphasized less or are not present may not mean that they are undervalued by the academics. Courses and focuses are often a function of such influences as the presence of an expert in the area who is interested in offering the course. Nevertheless, Silber (1982) points out that there are major areas which are emphasized in the literature that seem to be inadequately dealt with in many programs: front end analysis, performance/organizational development solutions, interpersonal skills, evaluation, and project management.

Reiser (1986) reported on a conference involving representatives of a dozen academic programs in instructional technology in the U.S. This report, published five years after Silber's, reinforces the observation that there is a lack of uniformity and agreement about what the curriculum should consist of, what the emphases should be, and at whom particular kinds of programs should be directed (i.e., undergraduate, masters or doctoral students).

The design of a curriculum for trainers in the U.S. Civil Service Commission reflects a focus on the more narrowly defined trainer, one who directs her efforts primarily at individual employees. A report on the project defines the trainer's roles as "training administrator, consultant, career counsellor, learning specialist and program manager" (Jorz & Richards, 1977, p. 22). But at the same time the report urges that trainers be prepared to "be involved in their organizations...Doing the job well will more and more come to mean advising management, engaging in problem solving, facilitating organizational change and aiding employees in their career growth; all apart from instructing and administrating" (p. 23-24).

Proposed Curricula

Various authors have proposed curricula for the development of trainers and performance technologists. Wallington (1981) provides a brief history of writings on needs and competencies for instructional developers. Then he proposes a set of generic skills which he contends underlie many of the tasks required of a competent instructional developer. Those generic skills he deals with "are for the most part rooted in specific instructional

development performances and skills but not so general as to be unteachable over a 2 to 3 year period or genetically innate" (p. 29). The skills areas are:

- interpersonal communication
- information structuring (which involves extracting and assimilating chunks of information and working them into a logical framework) (as defined by the subject matter expert)
- solving problems (mostly for instructional development)
- applying principles of the behavioral sciences
- systematically searching for related information (p. 29).

Robert Gagne, a founding father of systematic instructional design, reminds us that "there are some general decisions to be made in the design of a training program for instructional development specialists. These have to do with, first, the analysis of projected occupational activities to reveal the kinds of tasks required of people in this field...a further step is to analyze the tasks to see what kinds of learnable human capabilities (sometimes called competencies) are involved" (Gagne, 1977, p. 8). He then refers to the task analyses of educational research and development activities as good models to begin with. The implication is a curriculum in which generic skills of systematic research and development would be central (i.e., analysis, planning, developing, implementing, evaluating and diffusing).

Geis and Coscarelli (1987) suggest building upon those programs which now more narrowly prepare instructional technologists, such as the ones reviewed by Silber (1982). They propose an interdisciplinary curriculum based on: *technologies* (the techniques or skill used to produce interventions); *interventions* (the actions and products designed to improve human performance); and *conduct* (the governing professional behaviours of the technologist).

- *Technologies* include: Analysis which emphasizes such competencies as front end analysis and needs assessment; Valuing which includes cost-benefit analysis; Management which provides management and implementation skills; Design which includes those skills related to the creation of the intervention leading to the product or process developed to improve performance; and Evaluation which includes skills in formative and summative evaluation as well as in the development of feedback systems.
- *Interventions* would draw upon the knowledge base of such areas as ergonomics, organizational development, personnel selection and placement, motivation and guidance systems, as well as instruction.

- *Conduct* would provide training in interpersonal communication, organizational communication, and ethics.

Jonassen (1988) reported on a graduate program in corporate training (at the Instructional Technology Program, University of Colorado) which, following Gagne's advice was designed on the basis of a needs assessment. Various lists of competencies (to be discussed in more detail below) were consulted. A local needs assessment using the critical incident technique was carried out with a random sample of professional trainers and training supervisors. Major competency groups emerged and served as elements of the curriculum. These are worth reviewing here since they reflect many of the suggestions for expanding the narrower competency set that has characterized older programs in educational technology.

- Identify Projects for Instruction or Training (e.g., conduct a performance analysis)
- Conduct Needs Assessment
- Assess Learner/Trainee Characteristics
- Analyze the Job Task or Content
- Analyze the Learning Environment
- Select Instructional Strategies
- Sequence Instruction
- Select Instructional Delivery System
- Evaluate Instructional Outcomes
- Manage Instruction/Training Efforts
- Monitor Instruction/Training Projects
- Design and Deliver Instructional Messages (e.g., develop job aids; make effective verbal presentations).
- Demonstrate Interpersonal, Group and Consulting Behaviours
- Promote Instructional Development and Systems Strategies
- Provide Human Resources Development in the Organization
- Maintain a Professional Orientation.

Spitzer (1988) carried out a preliminary competency survey of experts in the training field in connection with the development of a program at Boise State University. He concludes It is clear from the survey results that "analytical" competencies are considered to be extremely important...instructional design was rated very high, as was consulting. Project management was rated high along with written and oral communication.

> "The trainer of today is being depicted as a person who is strongly grounded in analysis, an effective instructional designer, aware of media options (but not necessarily a production expert), able to consult effectively with managers, knowledgeable about organizational development and non-training interventions, a first-rate communicator, able to work effectively in teams, and highly intelligent in dealing with organizational dynamics" (p. 12-13).

A few themes emerge from even a cursory look at actual and proposed academic programs.

1. There are not a great number of such programs, and very few of them are in Canada.

2. Programs vary in emphasis and content.

3. Graduate programs in this field conform to the general profile of programs in other fields: they emphasize research, theory and interdisciplinary resources.

4. Program directors are aware of the evolution of the field over the past decade or so. The cutting edge programs have moved from the narrow focus on media or information (i.e., library) skills toward the broader profile of an instructional developer/trainer. In addition there is a tendency to evolve up the academic ladder from undergraduate to masters to doctoral programs.

5. Certain key elements in the technology, for example, front-end analysis, seem to be neglected in most programs.

6. Preparation of graduates for non-academic organizations is problematic in many cases. The competencies of practice, if they are acquired at all, seem to be acquired through field experience and internships. (It should be noted that many of the programs are located in Faculties of Education. Their clientele will return to the formal education system as instructional specialists or media experts).

7. Many academic programs and courses are clearly designed to prepare technically skilled technologists typically in audiovisual production. On the continuum: technician -- technologist -- scientist, they would occupy positions toward the left. Others, particularly doctoral programs emphasize theory and research.

8. It is important to note that in most academic programs, the target population is seen as a number of generalists who can assist in the development of instruction in any content area. Contrast this with the widespread assumption in industrial training (and in much of education) that the trainer must have expertise in the content area being taught. Discussions of the instructor's need for subject matter expertise permeate the literature but they would take us far beyond the focus of this report. Nevertheless, the issue is a crucial one in discussing trainer-practitioner's needs: namely, what is the role of subject matter experts in the training process? Academics tend to focus on the development of generic skills; but some recognize the problem by including among those skills the ability to work with and de-brief subject matter experts (see for example Bratton, 1981).

An additional source of input into a needs analysis are the private vendors of courses and workshops which presumably respond to needs perceived by trainers (although they may, like academic courses, be offered for other reasons). We have not dealt with them here because in the next section, on Resources, the range and frequency of such offerings is addressed.

COMPETENCIES AND STANDARDS

Professional associations have generated competencies lists. We have already noted in passing the well known efforts of AECT (1981) and ASTD. Such lists may serve any of several purposes: they can provide a guide to curriculum developers inside or outside the association; they may act as a guide for hiring trainers; they can be the basis for setting standards and certification procedures; they may serve as guides for continuing personal and professional development. For the purposes of this report, they directly address the issue of what trainers should know and be able to do.

Davie, Suessmuth & Thomas (1986) have provided a recent review of the literature on competencies. Their study reports as well on the outcome of three field validation exercises in which competency lists were reviewed by various groups of experts. A recent publication, Competency Analysis for Trainers, (Ontario Society for Training and Development, 1987) represents the culmination of a great deal of work by the Ontario Society for Training and Development. And a continuing project by the International Board of Standards for Training, Performance and Instruction (IBSTPI) (1986, 1988, 1989) provides a similar wealth of detail on this topic. Since these detailed lists of competencies exist elsewhere it would be redundant to repeat them here. However, several examples and a few general observations about them will be presented here.

The AECT competencies as noted earlier tend to focus more narrowly on the role of the trainer. The ASTD report provides a somewhat broader view. Pinto and Walker (1978) noted the distinction among roles, competencies and activities. Activities are the actual, specific job-related behaviours; clusters of these activities represent a particular role (e.g., instructional designer, media specialist). Underlying these activities are generic competencies (e.g., able to conduct a needs assessment, able to operate a videotape recorder). The ASTD report has served as the basis of many later activities in the field such as standard setting and certification efforts. It describes a variety of roles for HRD professionals. The original 15 roles have been grouped into six categories below:

- **Teaching role**

Instructor -- "presenting information and directing structured learning experiences so that individuals learn".

Group facilitator -- "managing group discussions and group process so that individuals learn and group members feel the experience is positive"

- **Individual development counsellor**

"helping an individual assess personal competencies, values, goals and identify and plan development and career actions".

- **Instructional systems designer**

Program designer -- "preparing objectives, defining content, selecting and sequencing activities for a specific program".

Media specialist -- "producing software for and using audio, visual, computer and other hardware-based technologies for training and development".

Instructional writer -- preparing written learning and instructional materials".

- **Management/Administration**

Manager of training and development -- "planning, organizing, staffing, controlling training and development operations or projects and linking training and development operations with other organization units".

Marketer -- "selling training and development viewpoints, learning packages, programs and services for target audiences outside one's own work unit".

Program administrator -- "ensuring that the facilities, equipment, materials, participants and other components of a learning event are present and that program logistics run smoothly".

- **Performance systems expert**

Evaluator -- "identifying the extent of a program, service or product's impact".

Needs analyst -- "defining gaps between the ideal and actual performance and specifying the cause of the gaps".

Strategist -- "developing long-range plans for what the training and development structure, organization, direction, policies, programs, services, and practices will be in order to accomplish the training and development mission".

Task analyst -- "identifying activities, tasks, sub-tasks, human resource and support requirements necessary to accomplish specific results in a job or organization".

Transfer agent -- "helping individuals apply learning after the learning experience".

- **Theoretician**

"developing and testing theories of learning, training and development".

In order to be effective in these roles one must have the requisite competencies; 31 competencies (at three levels of expertise) are described in the report. Some are relevant to one or few roles, others, too many. The competencies that appear in at least six or more of the role descriptions are:

Intellectual versatility
Feedback skills
Adult-learning understanding
Questioning skill
Computer competence
Data reduction skill
Organization/behaviour understanding
Writing skill
Competency-identification skill
Objectives-preparation skill
Presentation skill
Relationship versatility
Training and Development techniques

The OSTD manual (1987) is a professional assessment and development guide designed to assist the trainer-practitioner in determining her own needs areas, and in planning and pursuing further professional development. In this regard, it is somewhat different from the ASTD and IBSTPI manuals which are aimed at providing standards and look as well toward certification needs. Recognizing that trainers have quite different functions and jobs, the manual proposes four categories of competencies:

- Instructor -- concerned with *What* and *How To* in Training and Development
- Designer -- concerned with *Why* and *How*
- Manager -- concerned with *Who, When* and *Where*
- Consultant -- concerned with *All* of the above.

(In a like manner, each of the IBSTPI manuals of competencies is devoted to particular roles: Training Manager, Instructor, and Instructional Designer. And the ASTD report, as noted earlier, matches competencies against roles).

The 15 OSTD competencies, some of which are relevant to each training and development function, overlap the ASTD list but also have some new additions or re-groupings:

- Personal Self-Development
- Administration/Management
- Communications
- Consulting
- Course Design
- Evaluation
- Group Dynamics/Process
- Human Resource Planning
- Instructional Technology
- Interpersonal Skills
- Learning Theory
- Organization Development
- Research & Development
- Training Equipment & Materials
- Training Needs Analysis (Human Performance Analysis)

Particularly notable among the additions in the OSTD offering are Personal Self-Development, Research and Development, Learning Theory, and Training Needs Analysis.

Personal Self-Development highlights the need, particularly in a new and evolving field and one that is attempting to achieve professional status, for continued, aggressive and proactive learning by trainers.

Research and Development suggests the need for trainer-practitioners to be in contact with and competent to use, the applied research literature. And it implies that trainer-practitioners should contribute to the knowledge base in the field.

Learning Theory (or perhaps, theories) reminds the trainer-practitioner of the foundations upon which the field is built. Underlying research and theory is a key attribute in distinguishing professions from crafts. It also enables the professional to generalize beyond the specific and beyond procedural knowledge.

Training Needs Analysis suggests that trainer-practitioners must be competent in discriminating training and non-training problems and directing training interventions, when needed, to the appropriate target population.

In addition, the definitions of the competencies (e.g., Human Resource Planning) reveal a strong move toward knowledge of and activity at the broader level of the organization. The OSTD manual clearly provides a profile of trainer needs which is current with the changes in the profession we discussed earlier.

In the face of reams of paper listing needed competencies for the trainer-practitioner, there is a real need to summarize and generalize:

- First, competencies have been spelled out again and again in detail. Although one might argue about a particular item, sufficient literature now exists to at least begin the construction of a fine-grain description for purposes of testing, curriculum planning or job descriptions. However, the various lists offer somewhat different sets of roles and competencies. And there is ambiguity about much of the language used in the descriptions.

- Second, there is general agreement that the training (performance) function involves a number of roles.

- Third, some of these roles share competencies; while others have unique profiles.

- Fourth, these roles are, but only to a certain extent, reflected in job titles, e.g., training manager, instructor, media specialist. A whole list of competencies is unlikely to represent a single job; rather, these lists seem to address the training function in all its many parts. The implication is, as Davie, et al (1986) note, that it may not be possible to develop a single curriculum for all trainer-practitioners.

IMPLICATIONS FOR TRAINERS AND TRAINING

Twenty years ago, lists of competencies for trainer-practitioners focused on three areas: instructor, media specialist, and, to a lesser extent, instructional designer. Today's lists are (a) categorized by role or job description, (b) include many references to activities involving the organization that lie beyond the training division, and, (c) contain many "higher order skills" such as planning and developing strategies.

As noted earlier, the word "trainer" has become so ambiguous that it is hardly useful. For that reason, in this report we have alternated the use of the terms trainer and trainer-practitioner to more adequately reflect the expansion of roles beyond that of classroom instructor. There has been a dramatic differentiation of roles in the field. The categorizations in the OSTD and IBSTPI lists are symptomatic of this. Another indicator is the increasing number of separate tracks in the programs of professional association meetings -- each track addresses a different breed of trainer. Instruction, which used to be the centrepiece of any definition of trainer, has faded from prominence and stands alongside the several other evolving areas of attention.

To the many existing roles of personnel in the training function, one area must be added -- academic. Several graduate programs not only employ such training specialists but are also graduating some students who will take college and university positions and generate new programs.

Upgrading

The increased need for a grasp of, and an ability to exert influence on the organization is reflected in recent lists with more attention being paid to the broader issues of human resources, organizational development and communication.

Attention to increased professionalization of the field is reflected in the addition of competencies that have to do with continuing professional development, with research and development, and with involvement in professional associations.

Related to this last point is the increased attention to keeping up with the field. Whereas in the audio-visual specialist days, discussions of competencies implied a more or less closed field, today in these discussions, there is the clear implication that the field is rapidly changing and that the skills of keeping up with the changes are as important as any of the specific, craftsperson skills. Indeed, the broad trend that emerges is a change in the field from craft to profession. And as Bell (1983) says: "Studies of HRD competencies will need to be ongoing to ensure that trainer preparation matches work requirements" (p. 44).

Added Competencies

Some areas of competencies which are suggested in the literature and in models of training seem to be regularly neglected. As we noted, academic programs tend to slight such things as front-end analysis and formative evaluation. And they ignore major areas which would be important to the trainer entering many organizations, for example, financial and marketing skills.

On the other hand, academic programs emphasize some areas which are only lightly touched upon in the competency lists generated by professional associations, for example, research and development skills and familiarity with the disciplines which are the foundation of the training technology.

Weighting Competencies

The competency lists, as Davie, et al (1986) have noted, fail to indicate value or weightings. Consequently, they do not suggest relative importance. The degree of value placed upon certain competencies differentiates technicians, technologists and professionals. While a high degree of skill in operating audio-visual equipment is important for the technician, and evaluation skills may be of minor interest, the order of importance is reversed for a professional trainer. This says nothing about the value of the job itself, it merely draws attention to the need to weight different competencies according to anticipated role.

Competency lists to be evaluated or weighted must be considered in light of the perceived objectives and functions of the training group. Boothe (1985) illustrates the changing competencies that are required in the training function as it moves from addressing "staff goals" and demonstrating appropriate measures of success (such as hours of training and courses created) to "whole business goals" and relevant measures of success (such as profit, lives saved, growth). The clusters of the skills change from, for example, Presentation and Audiovisual Production, to Long Range Planning, Performance Systems Design and Problem Solving.

Generic Skills

And this brings up the final point. Generic skills of training which are basic prerequisites (needs) for anyone in the field should be factored out from the more specific skills which are tied to particular roles. Both the ASTD and the OSTD reports provide a first pass at such a sorting. Curriculum efforts require the same kind of discrimination (i.e., What are the basic concepts and skills to be taught to all students in the program?) Some of these have just been reviewed in the previous paragraphs.

In addition, it appears that there is agreement on the need to know, understand and use the heuristic for systematic instructional design. Basically this is a common heuristic for problem solving: Analyze -- Develop -- Implement -- Evaluate. Of course the elaboration of that heuristic into real procedures and activities is not so simple. The heuristic serves not only as the basis for solving instructional problems but also, as already noted, for any application of performance technology.

Related to this is the need to understand and apply the systems view to problem solving. This perspective encourages the trainer to search among the variety of possible influences on performance to discover which are the critical ones and which are amenable to change. The systems perspective allows the trainer to move upwards from the technician level -- from mechanically applying a few solutions in all problem situations to determining which solution is appropriate to a particular problem. After all, if it is not worth doing at all it is not worth doing well!

Together -- the ID heuristic and the Systems Perspective -- represent an emphasis on analysis and diagnosis. These generic skills, in contrast to those that represent specific solutions procedures or prescriptions, are directed to the primary stages of problem solving.

RESOURCES

The needs of a particular trainer-practitioner will depend, of course, on her/his own set of current competencies, her/his current job, and her/his personal and professional development plans. Opportunities to address those needs will vary depending on what needs are defined. This section of the report provides a brief description of professional development opportunities for trainers in Ontario.

PROFESSIONAL DEVELOPMENT OPPORTUNITIES IN ONTARIO

Professional Associations

Training is a rapidly changing area and one in which may practitioners are relatively isolated. It is especially important for trainers to maintain contact with others in the field and remain current with recent developments in it. Ontario has several active professional associations which can assist in that networking:

- Three chapters of The Ontario Society for Training and Development (OSTD)
- Two chapters of The National Society for Performance and Instruction (NSPI)
- The Human Resources Professionals Association of Ontario (HRPAO)
- Links to The Association for Media and Technology in Education in Canada (AMTEC)

The comparable American societies (ASTD, NSPI and AECT) are excellent resources for staying current with research and development activities in the field; as well they provide contact with other professionals.

Regular conferences are held by the major associations. Local chapters generally hold monthly meetings. Many of the journals which emanate from these organizations have been cited in this Report; they provide news of the field as well as commentary and content articles on new trends, techniques, and opportunities.

Membership directories are a key resource for networking with others in the field.

One of many advantages for the in-house trainer who becomes active in one of these organizations is the opportunity to meet with private consultants and trainers who are often aware of new trends and other resources.

Publications

As well as the journals in the field and in related disciplines, a wide range of books is available; some are broad introductions suitable for the entry-level trainer and some are for advanced study in a particular aspect of training (e.g., needs analysis, organizational development). ASTD, NSPI and others have published Handbooks on Training and Human Performance Technology. As well as the more commonly known book publishers, ASTD and University Associates of Canada are important and well-known sources of such publications and related materials in the training field (e.g., videotapes).

Competency Lists

The competency lists discussed in this report are excellent resources in themselves. As a first step in planning professional development the trainer might well consult the OSTD report which is designed as a self-development aid.

Academic Programs

There are only a few graduate programs of study at Canadian universities (e.g., a program at the Ontario Institute for Studies in Education (OISE) in Human Resources in the Adult Education Department; one at Concordia University (Montreal) in Educational Technology). Of course, there are related programs in such areas as Adult Education. However, Canada lacks a diverse and accessible set of academic programs at the university level; its academic offerings are not comparable to those in the United States.

The Ontario Colleges of Applied Arts and Technology are active in providing a variety of resources. Some (e.g., Durham, Algonquin, Conestoga) offer a complete program for the new trainer; others (e.g., Centennial) direct their courses at people who have assumed training as a secondary role. Often called "Train-the-Trainer" courses, they are designed to equip a supervisor or mentor with the necessary skills to provide some classroom or on-the-job training to new employees. In addition there are related courses which may be of interest to the trainer in such specific areas as literacy (e.g., Niagara).

SkillsLink and Other Databases

Ontario Training Corporation has developed a computer-based inventory of resources (e.g., training consultants, materials, books, courses, and workshops) available to trainers. SkillsLink includes entries which are directed to the trainee in a particular skill area (e.g., fork-lift truck operation) and hence can be used by the trainer faced with the need to deliver a specific kind of training. It also contains items which are useful for the professional development of the full or part-time trainer herself/himself.

A somewhat similar resource is ASTD's Trainet: an on-line database which offers information on American events and courseware.

The HRD Course Directory (1990) provides a listing of all available, relevant undergraduate and graduate course in the United States.

Professional Development Planning

The trainer herself/himself is a potential resource. McLagan (1987) has noted some important factors in effective professional development. These are things that the trainer must do in order to enhance her development. McLagan stresses the need for networking, for becoming part of the professional "grapevine". The trainer must develop the skills of self-managed learning including systematic planning of her/his development in order to avoid randomly taking courses or only reading what is on the desk. Time spent on searching for the right resource is as important as that spent in using the resource. While direct learning experiences (e.g., courses) may constitute some of the resources that the trainer uses in self-development, most professionals devote more time to continued learning via conferences, projects, reading, etc. "Planned professional development can help us develop and sustain the capacity and energy to contribute and prosper whatever our chosen field or career stage" (McLagan, 1987, p. 33).

HOW ARE WE DOING?

In some areas of anticipated needs, especially those which pertain to the traditional trainer competencies (e.g., presentation skills), there seem to be sufficient resources for the pursuit of professional development among fulltime trainers and to prepare part-time trainers for their training role. One should be cautioned, however, that the existence of a resource does not mean that it is accessible to a particular user, nor does it constitute an endorsement of the quality of the offering.

Despite a seeming quantity of resources, what emerges from a review of many of them is the image of near-vacuum in certain key areas which this report reveals as important trainer needs for the coming decade.

- There are insufficient training opportunities for those who: wish to evolve into the role of performance technologist; who wish to move toward a more professional role; and who wish to become partners in their organizations' strategic planning activities.

- There is a need for educational resources in the broad area of *analysis* (e.g., needs analysis, task analysis, causal analysis).

- There is also a need for educational opportunities in the areas of *organizational analysis and development* and, specifically, in both theoretical and practical aspects of *management*.

- Trainers will have difficulty in finding resources to learn more about *non-training solutions*.

- While courses and workshops are available on the topic of *evaluation*, few seem to address the practical problems of accountability to upper management and fewer still suggest that they develop in the learner creative approaches to evaluation which are effective and efficient.

- There is a clearly a need for additional and higher level academic programs and for increased systematic, programmatic contributions by professional associations.

- As well, organizations themselves must begin to contribute to this new "curriculum" by strengthening in-house opportunities for trainers.

CONCLUSIONS

This report began with a number of questions which can now be answered with some certainty.

- Is there a significant gap between where training in Ontario is now and where it is likely to be in the next decade?

  The answer is "Yes".

- Is the present infrastructure in Ontario prepared to meet those demands?

  The answer is "No".

- What needs might trainers address to prepare themselves for the year 2000?

  The Table in the Appendix and the discussion which follows provide an answer.

1. "Change" is the word that characterizes the trainer's world in the coming decade.

The workforce, the workplace, the organization, and the nature of jobs will all undergo dramatic changes over the next ten years. Trainers and others involved with human resource development will be faced with challenges and demands driven by these changes.

All of the organization's needs cannot, of course, be addressed by the training function. Industry, government and education must do more than they have in the past. Ample documentation exists elsewhere which indicates that Canadian industry has been slow to build the necessary infra-structure and to pay more than lipservice to the value of human resource development.

> "Canadian businesses have to learn to address their education and training agendas with the same level of competence and attention that they now devote to the financial and capital budgeting process. They have to make international business considerations central to their human resource programmes" (Rugman & D' Cruz, 1990, p. 10).

Government and educational institutions have failed to develop coordinated plans for manpower development. There is clearly a need for greater synergistic relationships of industry, government, labour, and education (for example, see Feldman, 1989).

Nevertheless, the training community itself must be ready to make more and better contributions to solving the problems produced by change. To do so its members must actively prepare themselves to meet the new demands:

- by learning how to deal with heterogeneous trainee populations, often with low literacy skills;
- by assisting in the redefinition of jobs and their interrelationships as the nature of the organization and the nature of work change;
- by facilitating the input of the workers and learners in the redefinition of jobs and in their development to higher levels of competence and greater satisfaction.
- by applying the problem solving approach of the emerging human performance technology to a wide range of human resource problems;
- by utilizing new technologies of performance improvement, particularly those systems, such as job aids, which are integrated into the job itself;
- by mastering and using where appropriate, non-training solutions;
- by contributing to the professionalization of the field;
- by increasing performance technology's value to the organization through better accountability and by linking performance improvement efforts to the organization's mission;
- by engaging in continuous, effective and efficient self-development in a field undergoing dramatic changes.

2. The field of training has changed dramatically and will change over the next decade.

Mark Rosenberg, 1990 president of the National Society for Performance and Instruction illustrates this "paradigm shift" succinctly by comparing traditional training and performance technology as follows:

A PARADIGM SHIFT TO PERFORMANCE TECHNOLOGY

From	To
Learning	Performance
Tactical	Strategic
Overhead/Support	Competitive Resources
Individual HR Service	Performance Improvement Systems
Instructional Technology	Performance Technology
Instructional Technologists	Performance Technologists
Educational Results	Business Results

(Rosenberg, 1990)

The shift in paradigm has been accompanied by differentiation of the trainer's roles, with trainer-practitioners increasingly specializing in a particular aspect of the technology. Nevertheless, certain generic knowledge is relevant to all members of the field including, importantly, a systems perspective and a solid grounding in the instructional design problem solving heuristic.

The definition of training, the role of the trainer, the place of the training function in an organization -- all of these determine what set of competencies a trainer should have. Training today is a river fed by several main tributaries. One of these streams is Education. It carries along such concepts as the teacher, the class, the presentation of information, and the transmission of knowledge. Another stream originates in the real world of the organization; it carries the concepts of performance (rather than knowledge or content), at-the-moment, on-the-job guidance, instead of classroom sessions, outcomes and impacts, instead of process. A third stream flows from the work, over the past few decades, in Adult Education which emphasizes the participation and contribution of the learner and the viewing of the learning as partner rather than pupil. As a consequence, the river is complex -- it contains many elements. Some of them are disparate, even antithetical. Clearly the "trainer" who is a classroom teacher (in a corporate environment instead of a public school) is worlds apart from a "trainer" who is designing computer-based job aids or better feedback systems. The first will stress presentation skills and lesson planning and will be concerned with the class as the unit receiving instruction. The latter will be focused on an individual performing a task.

People in the training field have been seen as solution-providers. The paradigm shift encourages them to move out of their traditional role. That role has been analogous to a pharmacist's -- dispensing prescriptions upon orders from others. The new image is more like that of a community physician with heavy emphasis

on diagnosis, selection of appropriate solutions, and evaluation cooperation with the various stakeholders who are involved in the learning process. The field has room for a variety of specialists and the "physician role" will not be appropriate to many people and situations. What is important is that a model or image has emerged characterizing an ideal member of the field which is quite unlike the image of twenty years ago.

3. **Human resource activities are becoming an essential, integral part of the organization.**

> "(HRD professionals) have come under pressure to become full business partners who make money for their organizations. This new role requires (them) to think, speak and operate more in economic and financial terms" (Carnevale & Schulz, 1990).

Some members of management may not support or may even resist this change. Some people in training may be equally averse to moving from their isolated island in the organization. But this change is necessary and inevitable. Consequently, many training-practitioners must be prepared to assume a more active role in their organization's strategic planning.

The converse of course, is that they must also provide greater accountability.

> "Practitioners of a specific technology can't exist as an 'island' within a business or service organization. Their success, worth, security, and even survival, depend, in the long term, on their effect on the organization's bottom line results" (Boothe, 1985, p. 3).

> "Despite the growing demand for accountability, financial accounting for training shows only a slight increase. As a rule, although training and development are undergoing more financial analysis, they are accounted for less than any other major corporate investment ... Human resource development professionals, reluctant to account for training, need to reorient their thinking to face the business realities of the nineties. Instead of deciding <u>whether</u> to measure and evaluate training's results, they must decide <u>how</u> to determine its costs and benefits" (Carnevale & Schulz, 1990, p. S-2).

> "Ongoing evaluation and corresponding de-emphasis of after-the-fact evaluation fit the fast pace of today's business environment, where training needs can emerge--and opportunities pass--quickly" (Carnevale & Schulz, 1990, p. S-3).

Trainers must be sophisticated in the area of evaluation. But book learning is not enough. They must creatively adapt and design evaluation methods. And the results must demonstrate the effectiveness of training in the language of the organization's mission. "Training (must have) demonstrable alignment with the role (identity) and mission (direction) of the organization" (Bell, 1983, p. 45).

Trainers must have a knowledge of the principles of Adult Education and be skilled in facilitating the contributions that the learner brings to any instructional effort.

Trainers need knowledge and skills in the management area as well as a good knowledge of the particular organization in which they are located.

> "Training departments need to stay in sync with the company -- its mission, goals, plans and changes -- as well as with trends in the industry" (Warshauer, 1990, p. 53).

4. Resources for development must be strengthened.

Continuing professional development plays an important role in all professions today. In the field of training it has never been more critical than it is now.

Ontario has many resources available, notable among which are: a wide range of private consultants and vendors offering a variety of products and services and very active professional organizations such as OSTD, NSPI and HRPAO. SkillsLink provides an inventory of courses and workshops and other materials useful for continued professional development. A few companies offer in-house resources to their trainers. And there are some academic programs at the college (e.g., Algonquin) and university (e.g, OISE) level.

However, the academic programs in Ontario and in Canada as a whole are few. There simply is not the number or range that are needed. Students are tempted to travel to the U.S. for programs such as those offered at Florida State, Indiana, or San Diego Universities. There is an urgent need to establish more programs (and to coordinate existing ones) to serve the coming generations of Canadians who seek a career in this area. Although Canadians have generated a few journals and some excellent research projects, the lack of sufficient academic infra-structure minimizes the Canadian contribution to research in this area.

Important also is the lack of resources in some of those areas which emerge in this report as critical for the effective trainer. The majority of available learning opportunities are in traditional areas of training such as presentation and media expertise. Key competency areas such as non-training solutions, organizational analysis, causal diagnosis, appropriate evaluation and management skills are poorly

served or neglected. Furthermore few educational opportunities address the underlying disciplinary knowledge (e.g., in Psychology, Management, Sociology) of the training field. Much of what is being offered is procedural and focuses on the How rather than the Why questions. Empowering learners so that they can move to more sophisticated professional roles requires a different "curriculum."

The needs of the trainer moving toward the next century are evident. Because the field of training is changing as rapidly as the environment in which the trainer will work, trainers must not only vigorously engage in self-development but each must also contribute to the exciting evolution of their profession.

APPENDIX

PROFESSIONAL DEVELOPMENT NEEDS TRAINERS MUST ADDRESS IN THE COMING DECADE

The following list indicates, in summary form, the specific needs areas identified throughout the paper, according to the section of the paper in which they were elaborated.

At the most global level, the paper identified three main areas which would most directly affect the needs of trainers in the coming decade:

- a predicted increase in the volume or amount of training being conducted;
- an increase in the global and organizational importance of training, and;
- changes in the nature of training.

CONTEXT: FUTURE OF THE WORKPLACE

Given the predicted characteristics and trends in the workplace, trainers would need to have, upgrade or learn new knowledge and skills in the following areas:

- interaction with experts who develop performance support systems
- introduction and implementation of new technology
- relations with upper management
- demonstrations of the benefits of training to upper management
- development of new sets of competencies for new jobs that are qualitatively different from traditional jobs
- generic skills such as problem-solving, critical evaluation, planning, and decision-making
- development of these generic skills in others
- design, implementation and evaluation of training plans and packages which teach these skills to others
- new approaches to job and task analysis
- diversity management, in such areas as learner analysis, communication styles, relationship management, cultural values, group process and group dynamics, and in developing and implementing interactive and experiential training methods
- literacy training, such as skills in learner analysis, accommodating differential learning styles and preferences, and development of appropriate, non-text based training methods

- aiding workers in advancing in the organization
- development and use of expert systems
- sophisticated skills in the guidance and assistance of learning with performance support systems
- performance analysis
- knowledge of the organization and how it operates
- negotiating skills
- knowledge of organizational development and of typical business operations
- new ways of demonstrating training's impact on the organization
- selling accountability to others in their organizations

TRENDS IN TRAINING

- using single learner instead of class or group-based strategies
- developing new training curricula
- knowledge and use of systems approaches to training and instructional development
- knowledge and use of adult education principles
- specialized skills in problem analysis
- knowledge of the particulars of the organization within which the trainer-practitioner works and knowledge of its markets or clients
- generic skills in organizational development and management
- becoming familiar with the new technologies of training
- selection/management/integration of performance support systems
- development of software for performance support systems
- familiarity, use, and development of job aids
- expertise in writing and explaining instructions
- expertise in error prediction
- knowledge and use of non-training solutions.

TRAINERS AND STAKEHOLDERS

- instructional design, presentation and training technologies
- evaluation
- strategic planning
- proactive approach to training
- selling of training within the organization
- knowledge of company politics
- knowledge of labour culture
- problem analysis
- skill in providing feedback and in motivating others

OTHER SOURCES: MODELS, CURRICULA AND STANDARDS

- supporting the professionalization of the field
- maintaining currency with the field
- front-end analysis
- formative evaluation
- research and development skills
- familiarity with disciplines upon which training technologies are built
- skill and knowledge in ISD

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